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Ministry of the Environment

Environmental Noise Guideline

Stationary and Transportation Sources - Approval and Planning
Publication NPC-300

Information Session – Thursday November 21, 2013
MOE Laboratory Services Branch Auditorium – 125 Resources Road, Etobicoke

Welcome

Introductions

- NPC-300 Technical Team:
  - Ian Greason, Tom Shevlin, Header Merza, Connie Lau and Alice Verbaas
- Environmental Approvals Branch, Environmental Approvals Access and Service Integration Branch and MOE staff from Regional and District Offices
- Stakeholders, including: municipalities, planners, lawyers, developers, industry, acoustical consultants, other ministries, transportation and utility sectors

Purpose

Overview of the:

"Environmental Noise Guideline
Stationary and Transportation Sources -
Approval and Planning,
Publication NPC-300"

Opportunity to:

- learn guideline details
- talk about implementation
- seek clarification
- discuss questions
- improve understanding
- strengthen relationships

Today's Agenda

- Overview presentation:
  - Summarize content of sections of NPC-300
  - Questions & discussion, as needed
- Refreshment break
- Resume presentation:
  - Complete overview of NPC-300 contents
  - Additional questions & discussion, as needed

Context

Recent improvements in the MOE Environmental Compliance Approval Program:

- Legislative changes 2010
- Environmental Activity and Sector Registry Regulations
- ECA application form and Guide to Apply
- Complete submission Ontario Regulation 255/11
- Enhanced application processing and screening
- NPC-300 Environmental Noise Guideline

Next priorities include, but are not limited to:

- Update ECA noise-related application guidance
- More Modernization of Approvals Initiatives

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Background

- Regulatory control of noise from stationary sources is basically achieved in two ways:
  1. Approvals issued by the MOE, and
  2. Decisions made by Land Use Planning Approval Authority.
- Noise-related guidance issued by MOE to support decision-making includes, but is not limited to:
  - NPC-205, NPC-232, etc.; applied in MOE approvals and programs, and
  - LU-131; noise assessment criteria applied in Land Use Planning includes guidance on requirements, procedures and implementation and used by municipalities, developers, lawyers and consultants.

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Drivers for Change

Long-standing concerns with 3 old guidelines from industry, developers, municipalities, the Ontario Municipal Board and noise consultants included:

- Inconsistencies resulted, at times, in new residential developments that put existing stationary sources (e.g., industry and commercial sources of noise) out of compliance,
- Regulated community required more clarity, certainty and protection to continue to be viable from residential encroachment,
- New approaches needed to facilitate urban development and support the objectives of the Provincial Policy Statement,
- Noise assessment criteria in 3 guidelines required evaluation and harmonization, and
- Current and future Ontario residents required appropriate protection from transportation and stationary noise sources.

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Consultation Results

- Acoustical specialists, consultants, municipalities, industry, transportation sector, planners, lawyers, developers, general public and other ministries participated:
  - Focus group sessions resulted in early draft of NPC-300,
  - Inter-ministerial consultations,
  - 60-day postings on Environmental and Regulatory Registries (59 comments received),
  - All municipalities notified,
  - During and after posting, multiple consultation workshops and meetings (over 200 participated),
  - Additional consultations on a revised draft guideline after Registry postings (additional 21 comments received), and
  - Consultation phase ended, NPC-300 finalized based, in part, on comments.
- Overall, response to the new draft guideline was positive

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Status

NPC-300, dated August 2013, is now in effect and it can be used.

- NPC-300 Guideline released to the public for implementation on October 21, 2013 via a Policy Decision Posting on the Environmental Registry, number 011-0597: http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTEwNDAw&statusId=MTgwODA2&language=en
- Find it here: http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_109570.pdf

or

- From MOE Public Information Centre 416-325-4000 / 1-800-565-4923 and ask for NPC-300 using the PIBS number: 8458e1

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NPC-300 Synopsis

What has changed?

- Single new guideline replaces 3 existing separate guidelines: NPC-205, NPC-232 and LU-131
- Changes designed to:
  - Clarify relationship between requirements for Land Use Planning and MOE approvals,
  - Provide consistency, and
  - Update technical content
- Harmonized definitions, requirements and procedures,
- Single set of identical noise assessment criteria for both MOE approvals and Land Use Planning decisions,
- Existing noise criteria assessed, minor adjustments to harmonize, and
- Additional new noise criteria proposed for new development in areas with existing stationary sources, by creation of new Class 4 area

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MOE Approvals Implementation

How does NPC-300 'replace' 3 old guidelines / how is it applied?

- Not retroactively applied to an existing approval unless and until amendment is required
- To new and amendment applications, as described in Section A2 on page 2 & 3:
  - Environmental Compliance Approvals which include noise emissions, and
  - Renewable Energy Approvals for solar and bioenergy projects.
- To amendments, generally, as follows:
  - For modifications to existing sources (e.g., any new NPC-300 requirements applied when changes made to equipment / operations at the stationary source trigger need for amendment to an existing approval),
  - Requirement for noise abatement action plan will be used if applying NPC-300 (alone) results in non-compliance with noise criteria,
  - To a stationary source approval when application for amendment is submitted to reflect a change to a Class 4 area, and
  - Additionally, stationary source may apply for amendment to apply NPC-300, in the absence of modifications

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Support for Implementation

- Information sessions November 19, 21 and 27, 2013
- Noise Duty officer service at Environmental Approvals Branch: 416-314-8001 / 1-800-461-6290
- Email questions to: Alice.Verbaas@ontario.ca, answers to be provided via return telephone call
- Pre-application consultation meetings
- Project initiated to update noise-related Environmental Compliance Approval application guidance documents will include consultation phase. Clarifications may be included, as warranted
- Need for additional information sessions to be assessed and delivered, if needed, after approximately 6 months' experience using NPC-300

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NPC-300 – Part A

- Background section includes:
  - Purpose
  - References
  - Definitions
    - Presentation focussed on new / revised definitions
  - Overview of applicable Legislation and the other NPC guidelines

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NPC-300 - Section A1

Four purposes of NPC-300 are to provide:

1. Sound level limits applied by MOE in Environmental Compliance Approvals, Renewable Energy Approvals (bioenergy & solar), Environmental Assessment and investigation of noise-related incidents,
2. Advice, sound level limits and guidance which may be use for decisions made under the Planning Act,
3. Sound level limits which may be used for municipal noise control by-laws, and
4. Sound level limits which may be applied for aggregate resource extraction licensing and permitting

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NPC-300 - Section A4

References

- All the publications referenced may be replaced with updated or amended versions from time to time
- Consult MOE website for latest versions

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NPC-300 - Section A5

Definitions:

Acoustic Barrier (page 5):

- Minimum surface density is 20 kg/m^2 (unchanged)

and new provisions for:

- Subject to technical justification density can be reduced no lower than 10 kg/m^2 for rooftop barriers and temporary barriers for short duration operations, such as, portable equipment, and
- Alternatively, comply with Canadian Standard for Certification of Noise Barriers (reaffirmed 2004) (Reference 4).

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NPC-300 Definitions

Background sound level (pages 6 and 7):

- Ambient sound level present in environment being produced by noise sources other than the ones being assessed (typically traffic)
- Measure or predicted using methods specified by MOE
- Normally excludes short duration noise (train) except in accordance with specific conditions and procedures, including, but not limited to;
  - Not Class 3 area and only where noise sensitive land uses within 300 metres from nearest track carrying minimum 40 trains in daytime or 20 at night,
  - 10 dBA adjustment subtracted from train sound levels, and added to higher of background sound level or applicable sound level limit

NPC-300 Definitions continued

Class 1 area = receptor location (page 7):

- Urban environments typical of major population centres, where background sound level characterized as "urban hum"

Urban hum (page 21) :

- Aggregate sound of many unidentifiable noise sources due to activities of people and primarily composed of road traffic related sound sources

Class 2 area = receptor location (page 7):

- Suburban environments with acoustical qualities representing both Class 1 and Class 3:
  - Like an urban Class 1 area during daytime
  - Quieter at nighttime with infrequent human activity similar to natural environment

Class 3 area = receptor location (page 7):

- Rural area with acoustical environment dominated by natural sounds, having little or no road traffic

NPC-300 Definitions continued

Dwelling (page 8):

- New definition to replace caretaker residence intended for situations where residences are located on the property of a stationary source, whose residents may or may not be associated with the stationary source

Noise Sensitive Land Use (page 13):

- Dwellings located within the property boundaries of a stationary source are not noise sensitive
- To clarify: noise sensitive institutional purpose buildings (page 12), which include e.g., hospital rooms & student residences and noise sensitive commercial purpose buildings (page 12) e.g., hotel rooms with operable windows continue to require assessment in approval applications for any stationary sources located at these types of buildings because they are not the same thing as dwellings

NPC-300 Definitions continued

Enclosed Noise Buffer (page 9):

- New definition only applicable to high-rise multi-unit buildings in Class 4 areas
- A type of receptor based 'on building' noise control measure (page 12)
- Essentially a glassed in balcony
- 5 characteristics are specified and listed, including:
  - Architectural design is not amenable to converting the enclosed space to being noise sensitive
- Sound level limits are applied to windows of the noise sensitive spaces protected by the enclosed noise buffer (B3.1 Procedures, page 26)

NPC-300 Definitions continued

Inaccessible vacant lot (page 10):

- Owner does not have legal right to access in the future though use of a road or motor vehicle as defined by the Highway Traffic Act or by a watercraft using a navigable waterway
- Referred to in Point of Reception (page 15)
  - Inaccessible vacant lots are not points of reception

NPC-300 Definitions continued

Indoor sound level (page 10):

- Is calculated or measured in the central part of the room

Plane of window (page 14):

- Point in space corresponding to the centre on the exterior side of the window in a noise sensitive space

NPC-300 Definitions continued

Inoperable (fixed or sealed) window (page 10):

- A type of receptor based 'on building' noise control measure (page 12)
- Not considered points of reception and not subject to sound level limits, when:
  - Cannot be associated with or convertible to a noise sensitive space, e.g., in a single loaded corridor serving a high-rise multi-unit building, (B3.1 Procedures, page 26) and
  - Are associated with noise sensitive spaces in a noise sensitive commercial or institutional purpose building (page 15)
- Additional requirements specified

NPC-300 Definitions continued

Layover site (page 11):

- "means a Metrolinx/GO Transit facility, a TTC facility or other facilities ***dedicated*** to overnight storage and idling to prepare for departure of commuter trains, streetcars, subways and light rail transit (LRT) vehicles. ***Layover sites do not include maintenance, repairs and/or shunting operations***."
- Essentially a parking lot for these types of vehicles

Sound Level Limits for Layover Sites (Section B7.4 on page 30 and Section C4.5.4 on page 48):

- Is the higher of 55 dBA or the background sound level

Auxiliary transportation facility (page 6):

- Largely unchanged, with exclusion of a newly defined layover site

NPC-300 Definitions continued

Noise control measure (page 12):

- Need to be permanent, not readily removable or alterable by future occupants
- Temporary measures only acceptable when noise source is temporary operation e.g., portable equipment
- Generally include, but are not limited, to the following types:
  - Source based noise control measures
  - Receptor based outdoor noise control measures
  - Receptor based "on building" noise control measures
  - Receptor based site configuration noise control measures
  - Receptor based site construction and architectural noise control measures
- Each type is described and examples are listed
- Note the language: 'examples', 'not limited to', & 'etc.'
- Additional guidance provided in Part B and Part C

NPC-300 Definitions continued

Noise sensitive commercial purpose building (page 12):

- Commercial purpose building that includes rooms used as sleeping facilities

Noise sensitive institutional purpose building (page 12):

- Institutions including educational facilities, day nursery, hospital, health care facility, shelter for emergency housing, community centre, place of worship and detention centre
- Places of worship located in commercially or industrially zoned lands not considered noise sensitive

Outdoor locations associated with noise sensitive institutional and commercial purpose buildings are not points or reception (page 15)

NPC-300 Definitions continued

Noise sensitive land use (page 13):

- Includes spaces that are noise sensitive and spaces that are not noise sensitive
- Associated outdoor living areas are noise sensitive, with the exceptions of commercial and institutional purpose buildings
- Dwellings located on the property of a stationary source are not noise sensitive

Noise sensitive space (page 13):

- Living and sleeping quarters of dwellings and sleeping quarters of noise sensitive commercial or institutional purpose buildings
- Examples provided - note 'not limited to' language

NPC-300 Definitions continued

Noise sensitive zoned lot (page 13):

- Property zoned to permit noise sensitive land use and is either:
  - Currently vacant, or
  - Has existing land use that is not noise sensitive
- Point of reception on a vacant noise sensitive zoned lot determined at centre of 1 hectare area, considering typical building pattern in area, likely future use and at height of 4.5 metres above grade, from definition (page 15)
- There are no points of reception on existing land use that is not noise sensitive, unless there is information indicating it will be replaced by new noise sensitive in near future

NPC-300 Definitions continued

Outdoor living area (pages 13 - 14):

- Applied to transportation sources of noise
- Includes:
  - Backyards, front yards, gardens,
  - Balconies and terraces over 4 metres deep
  - Common living areas in high-rise multi-unit buildings
- Specific information included for how to identify the point of assessment
- For elevated areas and areas at grade < 6 metres deep, assess at middle and 1.5 metres above grade or floor level
- Minimum area defined that needs be protected for different types of residences, e.g., 56 m^2 for single family

NPC-300 Definitions continued

Point of reception (pages 14 -16):

- Any location on noise sensitive land use impacted by stationary source noise
- Continues to include 'self assessment' scenarios e.g., hospital rooms, student residences, etc., with the exception of dwellings located on the stationary source property
- 6 different locations are described:
  1. Outdoors, typically yards
  2. Balconies and elevated terraces over 4 metres deep
  3. Campsites
  4. Windows at specified heights for each storey
  5. On vacant land approved under Section 41 Planning Act or with building permit
  6. All other situations where noise sensitive lot is vacant and accessible
- Three exceptions already discussed

NPC-300 Definitions continued

Predictable worst case noise impact (page 16):

- Greatest noise impact at a point of reception during an hour from the combined noise of the stationary source operations relative to the applicable sound level limit
- Includes:

1. Regular, routine equipment operations
2. Infrequent operations that occur less than twice a month and last less than half an hour each time are excluded
3. Emergency equipment operations in non-emergencies have separate sound level limits in Sections B7.3 (page 29) and C4.5.3 (page 47):
   - In these cases limits are 5 dBA higher than the applicable limits, need to be assessed independently and excluded from overall noise assessment of stationary source

NPC-300 Definitions continued

Stationary source (pages16 - 20):

- Categories based on MOE approval requirements, unless noted are all subject to Part C, with examples:

1. Sources subject to Part B and to approvals & investigations by MOE or other ministries (Ministry of Natural Resources)
2. Sources exempted from Environmental Compliance Approvals by O. Reg. 524/98
3. Sources addressed by Ontario Ministries of Agriculture and Food not subject to Part B or Part C
4. Sources that generally do not require MOE approval due to federal jurisdiction
5. Sources not considered stationary sources and not subject to Part B or Part C, includes 'back up beepers' and those normally addressed by municipal noise control by-laws
6. Sources not requiring impact assessment associated with emergency measures exempt from Part B and Part C

NPC-300 Section A6

Legislative background (pages 21 - 23):

- Environmental Protection Act
- Environmental Assessment Act
- Planning Act
- Municipal Act
- Aggregate Resources Act
- Farming and Food Production and Protection Act
- Niagara Escarpment Planning and Development Act

Noise Pollution Control Guidelines issued by MOE (page 23 - 24):

- Two types:
  1. Procedural, for measurement, calculation and instrumentation specifications
  2. Sound level limits applicable for different types of noise sources

Break

NPC-300 - Part B

Stationary Sources Section includes:

- Scope is MOE approvals, MOE incident report investigations and other permitting legislation
- Responsibility:
  - B1.2 Stationary source responsible for compliance with MOE approvals at existing and zoned noise sensitive uses
  - B11 Compliance for proposed new noise sensitive uses is responsibility of development proponent in land use planning process
- Noise impact studies, prepared by qualified individuals with acoustical experience, preferably Professional Engineers
- Procedures assume noise sensitive windows on each floor of any façade with full or partial exposure to stationary source except for inoperable windows and enclosed noise buffers, where applicable

Part B - Sound Level Limits

General:

- Objective of plane of window limits is to protect indoor noise areas, consequently consider ventilation devices or openings in building façade in impact assessment (page 27)
- Limits for Class 1, 2 and 3 assume open windows
- Limits for Class 4 area assume closed windows together with a ventilation system (e.g., central air)
- Nighttime plane of window limits also protect outdoor points of reception

Table B-1 Sound Level Limits

Exclusion Limit Values of One-Hour Equivalent Sound Level (L_{eq}, dBA) Outdoor Points of Reception (page 28)
Same as Table C-5 (page 46)

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	55
19:00 – 23:00	50	45	40	55

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Table B-2 Sound Level Limits

Exclusion Limit Values of One-Hour Equivalent Sound Level (L_{eq}, dBA) Plane of Window of Noise Sensitive Spaces (page 28)
Same as Table C-6 (page 46)

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	60
19:00 – 23:00	50	50	40	60
23:00 – 07:00	45	45	40	55

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Table B-3 Sound Level Limits

Exclusion Limit Values for Impulse Sound Level (L_{LM}, dBAI)
Outdoor Points of Reception (page 29)
Same as Table C-7 (page 47)

Time of Day	Actual Number of Impulses in Period of One-Hour	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 23:00	9 or more	50	50	45	55
	7 to 8	55	55	50	60
	5 to 6	60	60	55	65
	4	65	65	60	70
	3	70	70	65	75
	2	75	75	70	80
	1	80	80	75	85

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Table B-4 Sound Level Limits

Exclusion Limit Values for Impulse Sound Level (L_{LM}, dBAI)
Plane of Window – Noise Sensitive Spaces (page 29)
Same as Table C-8 (page 47)

Actual Number of Impulses in Period of One-Hour	Class 1 Area (07:00–23:00)/ (23:00–07:00)	Class 2 Area (07:00–23:00)/ (23:00–07:00)	Class 3 Area (07:00–19:00)/ (19:00–07:00)	Class 4 Area (07:00–23:00)/ (23:00–07:00)
9 or more	50/45	50/45	45/40	60/55
7 to 8	55/50	55/50	50/45	65/60
5 to 6	60/55	60/55	55/50	70/65
4	65/60	65/60	60/55	75/70
3	70/65	70/65	65/60	80/75
2	75/70	75/70	70/65	85/80
1	80/75	80/75	75/70	90/85

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B9.2 - Class 4 Area

MOE Guidance / advice for land use planning (page 31-32):

- Not applicable in areas with existing noise sensitive land uses(s) or Class 3 areas
- In proximity to existing, lawfully established and approved stationary sources
- New noise sensitive land use(s) to be developed in area
- Formal confirmation from land use planning authority, at their discretion, during land use planning process, examples could include:
  - Official Plan designation / amendment
  - Section 37 Agreement under Planning Act
  - Zoning by-law provision
- Definition (page 8) and C4.4.2 (pages 43 - 44)

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B9.2 - Class 4 Area continued

Applicable considerations:

- Impact assessment, completed as early as possible, needs to verify limits will be met
- Noise control measures may be needed (as a minimum ventilation system required because limits apply to closed windows)
- Source based and/or receptor based noise control measures can be used
- Agreements for noise mitigation, registered on title, see definition (pages 5-6)
- Include warning clause Type F (page 56) in Agreements, such as, Offer of Purchase and Sale / Lease and registered on title

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B9.3 - Area Classification Issues

- Same limits apply to MOE approval of stationary source and land use planning approval for noise sensitive land use
- Classification of Class 4 area continues as long as stationary source(s) can potentially operate (i.e., until change in zoning)
- Only when adjacent existing noise sensitive land uses in Class 1 or 2 are replaced is it appropriate to convert to Class 4

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Discussion: NPC-300 Part B

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NPC-300 - Part C

Land Use Planning Section includes:

- Scope:
  - Applied for stationary sources in MOE approvals / programs
  - Guidance from MOE for consideration / implementation in land use planning decision making
  - Roles
  - Objectives of noise assessments
- Noise impact assessment: road traffic, rail traffic and aircraft noise and combinations of different sources of transportation noise
- Noise impact assessment: stationary sources
- Determining the area classification
- Sound level limits
- Noise control measures
- Warning clauses

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NPC-300 - Part C continued

Responsibility C1.3.1 (page 34):

- Proponent (e.g., developer) of proposed new sensitive land use to:
  - Determine feasibility
  - Noise impact assessment
  - Determine need for noise mitigation
  - Noise control measures; feasibility, implementation and provisions for ongoing maintenance
- Noise Impact Studies C2 (page 35):
  - Feasibility studies as early as possible in the land use planning process
  - Detailed studies may be requested, for example, as a condition of development approval

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NPC-300 - Part C continued

Transportation Sources C3 (pages 37-41):

- Multiple transportation noise sources: Road, Rail and Air
  1. Separate outdoor aircraft impact
  2. Combine outdoor road and rail impact, and
  3. Separately assess indoor impact for road, rail and aircraft, then combine acoustical insulation parameters for each of those sources to determine suitable noise control measures for indoor environment
- In all cases, consider future sound levels:
  - Specific direction on these requirements provided by land use planning authority
  - Road and rail, minimum 10-year prediction
  - Use current (or future, if available) NEF/NEP contours from airport authority
- For indoor sound levels apply the specific limit for that space or limit for closest analogous space

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NPC-300 - Part C continued

Road Traffic Noise C3.2 (pages 37-38):

- Use ORNAMENT/STAMSON or other method adopted by MOE
- Assess outdoor living area and indoor areas
- Exceedances of limits require mitigation measures
- Noise control measures not required when:
  - ≤ 55 dBA in outdoor living area in daytime (16 hours from 07:00 to 23:00) = Sound Level Limit Road and Rail in Table C-1 (page 38)

  and
  - 50 dBA in plane of bedroom windows (assessed outside) during either daytime or nighttime (8 hours from 23:00 to 07:00) (page 38)

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NPC-300 Part C continued

Indoor Sound Level Limits Table C-2 (page 38) Road and Rail applied with windows and doors closed

Type of Space	Time Period	L_{eq} (dBA)	
		Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 – 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00 – 07:00	45	40
Sleeping quarters	07:00 – 23:00	45	40
	23:00 – 07:00	40	35

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NPC-300 - Part C continued

Road noise control measures C7.1 (pages 49-52):

- All types in definition in Part A appropriate for transportation sources
- > 55 and ≤ 60 dBA daytime in outdoor living area - use noise control measures to reduce to 55 dBA or use Warning Clause Type A (page 55)
- > 55 and ≤ 65 dBA daytime or nighttime in plane of bedroom or living/dining room window - design with a provision for installation of central air condition in the future, at occupant's discretion and use Warning Clause Type C (page 55)
- > 65 dBA daytime in plane of bedroom or living/dining room window - central air conditioning needed, with Warning Clause Type D (page 56) and design building components to meet Indoor limits in Table C-2
- > 60 dBA nighttime in plane of bedroom or living/dining room window - central air conditioning needed, with Warning Clause Type D and design building components to meet Indoor limits in Table C-2

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NPC-300 - Part C continued

Rail Traffic Noise C3.3 (page 39):

- Use STEAM/STAMSON or other method adopted by MOE
- Assess outdoor living area and indoor areas
- Exceedances of limits require mitigation measures
- Noise control measures not required when:
  - ≤ 55 dBA daytime in outdoor living area = Sound Level Limit Road and Rail in Table C-1 (page 38)

  and
  - ≤ 50 dBA during either daytime or nighttime in plane of bedroom windows (page 39)
  - Same as for road traffic noise

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NPC-300 - Part C continued

Rail Traffic Noise:

- For outdoor living area and ventilation requirements assessments exclude whistle noise C7.2.1 (page 51)
- For building components assessment combine 3 sources: locomotive, wheel-rail interaction and whistle noise C7.2.3 (page 51)
- Indoor limits are 5 dBA lower for rail than for road to account for special characteristics: high pass-by sound level for short duration with major low frequency component produced by diesel locomotive C3.3.3 (page 39)
- Consequently, acoustically superior architectural components required for railway noise e.g., for windows and walls C3.3.3 (page 39)

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NPC-300 Part C continued

Indoor Sound Level Limits Table C-2 (page 38) Road and Rail applied with windows and doors closed

Type of Space	Time Period	L_{eq} (dBA)	
		Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 – 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00 – 07:00	45	40
Sleeping quarters	07:00 – 23:00	45	40
	23:00 – 07:00	40	35

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NPC-300 - Part C continued

Rail Traffic Noise 7.2 (page 51):

- > 55 dBA nighttime or > 60 dBA daytime outside the bedroom or living room windows - design building components to meet Indoor limits in Table C-2 with specified acoustical performance
- Additionally, exterior walls of first row of dwellings next to tracks built from minimum of brick veneer or masonry equivalent construction from foundation to rafters when rail traffic > 60 dBA at location of nighttime receptor and dwellings are within 100 metres of the tracks

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NPC-300 - Part C continued

Combination Road and Rail Noise C7.3 (pages 51-52):

- Combine sound levels assessed for outdoor living area, plane of window, requirements for outdoor measures, ventilation measures, and warning clauses
- Assessment of indoor sound levels and resultant acoustical descriptors for building components done separately and subsequently combined to determine required components

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NPC-300 - Part C continued

Supplementary Noise Limits Road and Rail Table C.9 (page 48)

for good-practice design objectives at uses not normally considered noise sensitive and applied with windows and doors closed

Type of Space	Time Period	L_{eq} (Time Period) (dBA)	
		Road	Rail
General offices, reception areas, retail stores, etc.	16 hours between 07:00 – 23:00	50	45
Living/dining areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	16 hours between 07:00 – 23:00	45	40
Sleeping quarters of hotels/motels	8 hours between 23:00 – 07:00	45	40
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	8 hours between 23:00 – 07:00	40	35

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NPC-300 - Part C continued

Air Traffic Noise C3.4 (page 40)

- 2005 Provincial Policy Statement prohibits new residential development and other sensitive uses in aircraft noise zones above the NEF/NEP 30 contour available from airport authority = 24 hour Outdoor Aircraft Noise Limit Table C-3 (page 40)
- Separation distance from airport to noise sensitive land use is only measure that controls the outdoor noise impact
- When impact exceeds limit for redevelopment / infill situations, warning clauses, mitigation for indoor spaces (central air conditioning, building components, etc.) are needed
- Erattum (page 40): "The indoor NEF values can be calculated by converting the indoor sound levels, expressed as L_{eq} (24) (dBA), using the expression NEF = L_{eq} (24) - ***32*** dBA

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NPC-300 - Part C continued

Air Traffic Noise Indoor Limits Table C-4 (page 41)
apply over 24-hour period with windows and doors closed

Type of Space	Indoor NEF/NEP*
Living/dining/den areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, etc.	5
Sleeping quarters	0

* The indoor NEF/NEP values in Table C-4 are used to determine acoustical insulation requirements based on the NEF/NEP contour maps.

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NPC-300 - Part C continued

Air Traffic Noise Indoor Limits Table C-10 (page 49)
for good-practice design objectives at uses not normally considered noise sensitive and applied over 24-hour period with windows and doors closed

Type of Space	Indoor NEF/NEP*
General offices, reception areas, retail stores, etc.	15
Individual or semi-private offices, conference rooms, etc.	10
Living/dining areas of residences, sleeping quarters of hotels/motels, theatres, libraries, schools, daycare centres, places of worship, etc.	5
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	0

* The indoor NEF/NEP values listed in Table C-10 are not obtained from NEF/NEP contour maps. The values are representative of the indoor sound levels and are used as assessment criteria for the evaluation of acoustical insulation requirements.

Ontario

NPC-300 - Part C continued

Aircraft Noise Control Measures C7.4 (page 52):

- Receptor within NEF/NEP contours of 25 - 30 design with provision for central air conditioning, design building components to meet limits in Table C-4 and use Warning Clause Type A and C (page 55)
- If residential development approved above NEF/NEP 30 contour, central air conditioning needed, design building components to meet limits in Table C-4 and use Warning Clauses Types B and D (pages 55 and 56)

Combination of Road, Rail and Aircraft Noise C7.5 (page 52):

- Separately calculate aircraft noise and surface transportation (combined road and rail), except for indoor sound levels
- Assessment of indoor sound levels and resultant acoustical descriptors for building components done separately and subsequently combined to determine required building components

Ontario

NPC-300 - Part C continued

Combination of Transportation and Stationary Sources of Noise C7.7 (page 53):

- Separately evaluate noise control measures needed for transportation and stationary for daytime and nighttime
- Final selection of measures need to ensure compliance with applicable sound level limits for each category of noise source

Ontario

NPC-300 - Part C continued

Air Conditioning C7.8 (page 54):

- Ventilation provisions required where windows are to remain closed to meet the applicable sound level limits
- Specifically:
  - Only in situations in Class 4 areas and where the Indoor Limits for transportation sources apply, and
  - Where inoperable windows used in noise sensitive commercial & institutional purpose buildings in Class 1, 2 or 3
- Central air conditioning method used mostly in single family dwellings
- Other form of ventilation systems acceptable (e.g., tempered air system in long term care facilities) that do not exceed 40 dBA indoors and complies with applicable standards and codes, etc.

Ontario

NPC-300 - Part C continued

Verification of Noise Control Measures (page 55):

- Recommend measures implemented be verified by qualified individuals with experience in environmental acoustics

Ontario

Discussion: NPC-300 Part C

Ontario

NPC-300 Summary

- NPC-300 includes updated guidance, improved clarity and consistency in single consolidated document,
- Facilitates urban intensification for additional new residential development while preserving viability of existing industries,
- Addresses objectives of Provincial Policy Statement,
- Aids in establishment of compatible land uses between different types of adjacent property developments,
- Existing noise limits assessed and are appropriate, with minor modifications,
- Additional flexibility for land use planning decisions without leading to compliance issues for industry, and
- Protects current and future Ontario residents from transportation, commercial and industrial noise sources

Thank you