APPENDIX 5
Equations for the Development of Residential and Non-residential Indoor Air Remediation Standards for the Vapor Intrusion Exposure Pathway

Equation 1
Carcinogenic Indoor Air Human Health-based Criteria

Source: U.S. Environmental Protection Agency, Regional Screening Table, User's Guide (November 2014) (Equations 4.9.2 and 4.10.2)

$$IA_c = \frac{TR * AT * LT}{EF * ED * ET * \frac{1}{24}\frac{day}{hours} * IUR}$$

Parameter	Definition	Units	Default
IA_c	Carcinogenic indoor air human health-based criterion	µg/m^3	Chemical-specific
TR	Target cancer risk	unitless	1x10^{-6}
AT	Averaging time	days/year	365
LT	Lifetime	years	70
EF	Exposure frequency	days/year	350 (Residential) 250 (Non-residential)
ED	Exposure duration	years	26 (Residential) 25 (Non-residential)
ET	Exposure time	hours/day	24 (Residential) 8 (Non-residential)
IUR	Inhalation unit risk	(µg/m^3)$^{-1}$	Chemical-specific

Equation 2
Non-carcinogenic Indoor Air Human Health-based Criteria

Source: U.S. Environmental Protection Agency, Regional Screening Table, User's Guide (November 2014) (Equations 4.9.1 and 4.10.1)

$$IA_{nc} = \frac{THQ * AT * ED * \frac{1000\,\mu g}{mg}}{EF * ED * ET * \frac{1}{24}\frac{day}{hours} * \frac{1}{RfC}}$$

Parameter	Definition	Units	Default
IA_{nc}	Non-carcinogenic indoor air human health-based criterion	µg/m^3	Chemical-specific
THQ	Target hazard quotient	unitless	1
AT	Averaging time	days/year	365
ED	Exposure duration	years	26 (Residential) 25 (Non-residential)
EF	Exposure frequency	days/year	350 (Residential) 250 (Non-residential)
ET	Exposure time	hours/day	24 (Residential) 8 (Non-residential)
RfC	Inhalation reference concentration	mg/m^3	Chemical-specific

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If the calculated indoor air human health-based criterion for a contaminant is less than the air reporting limit, the indoor air remediation standard defaults to the air reporting limit.