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Tallooyinka Caafimaadka Dadweynaha ee COVID-19: Tixgelintada hawada gudaha meelaha yar

Tayada hawada gudaha la hagaajiyay waxay la xiriirtaa wax soo saar hagaagsan iyo natiijooyin caafimaad wanagsan, iyadoo aan loo eegin COVID-19. Hagaajinta xaaladahaas, meesha looga baahdo, waxay noqoni kartaa maalgashi bixin kara faa iidooyin ku fidaysa yareynta gudbinta cudurada faafa.

Meelaha hawada gudaha ah waxay ubaahantahay tigelin gaar ah sababtoo ah isku gudbinta macquulka ah ee COVID-19 ka imaan karta soo-saarista hawada aeosaliska ee aan ka dhalino neefsashada, hadalka, qosolka, qaylada, heesida, qufaca, iyo hindhisada. Ilaalinta masaafada ugu yaraan 6 fuudh oo udhaxaysa dadka ayaa kaa caawin doonta kahortaga ubaylahida dhibcaha aan soo dayno, lakiin walxaha yaryar ama aerosalkuwaxay noqon karaan kuwa hawada kujira daqiiqado ilaa saacado ayadoo ay kuxirantahay hawo qaadashada, huurka, iyo waxyaabaha kale ee meelaha gudaha ah. Hawo xumida ee meelaha gudaha, oo dad fara badan ay ku jiraan, ayaa si weyn u kordhisa halista faafida fayraska.

Hoos waxaa ku xusan talaabooyinka maamulayaasha dhismaha iyo milkiileyaasha hantida waxay qaadi karaan si loo hagaajiyo tayada hawada gudaha ee goobaha ay maamulayaan. Guud ahaan, talaabooyinka waxay qorshahooda tahay inay 1) kordhiyaan xaddiga hawada banaanka nadiifka ah oo lagu soo kordhiyay nidaamka, 2) Hawada la isticmaalay ka imaanaysa gudaha aadaysa bannaanka, iyo 3) nadiifiyaan hawada dib looga soo celinayo gudaha iyadoo la adeegsanayo habab kala duwan oo kala soocid ah (tusaale, miirayaasha HEPA) si looga saaro waxyaha ku jira fayraskas.

Tallooyinka caafimaadka Dadweynaha hawo-qaadashada melaaha banaan ee gudaha

- Kordhi hawo-qaadista banaanka ee hawada nadiifka ah lageynaayo meelaha gudaha.
- U qorsheey dad yar ee qolalka waaweyn. Tani waxay oggolaanaysaa masafo badan oo u dhaxeysa dadka iyo boosas badan oo banaan loogu talagalay dhaqdhaqaaqa hawada iyo kala-bax.
- Had iyo jeer ka shaqee marwaaxadaha qiiqa musqusha markii dhismaha laqabsado.
- Ku shaqee kuna dayactir nidaamyada hawo-qaadista qiiqa meelaha jikada ama meelaha wax lagu kariyo marka meelahaas la qabsado. Tixgeli inaad ka shaqeyso hawo-qaadista qiiqa ee degaanka xitaa marka meelahaan banaan aan la degganeyn si loogu daro hawo-qaadista dhismaha marka meelaha kale la qabsado
- Fur daaqadaha iyo albaabadaha markay cimiladu saamaxdo markii laga reebo in ay halis caafimaad ama badbaado ay abuureyso moyee.

- Isticmaal marwaaxadaha si ay kaaga caawiso hawada in ay kasii baxdo daaqadaha furan. Ha dhigin marwaaxadaha si hawadu toos ugu gudubto wajiga hal qof ee dhanka dadka kale.
 - Tixgeli inaad dhigto marawaxada si hufan meel daaqad ah sidaa darted waxay hawadu ka soo dhaqaajinaysaa gudaha ugana qaadaysaa banaanka..
 - Dhaqdhaqaaq hawo katimaada meel nadiif ah aadana meel aan nadiif hayn aya lagu talinayaa
 - Haddii daaqadu hawo lagu rakibo qaboojiye, ka shaqee si kor loogu qaado qaadashada hawada banaanka. Hubso in hawa-qaaduhu uu furan yahay haddii tayada hawadu banaanka ay fiicantahy.
- Haddii ay jiri doonto isbeddelo degitaanku maalintii oo dhan, u oggolow nasasho u dhexeysa kooxaha marka ay suurtoagal tahay si booska uu u ahaado “mid la nadiifiyay” si looga saaro jeermisyada hawada ku jira. Falaashida waxaa sida ugu wanaagsan lagu gaari karaa iyadoo la siinayo hawo banaanka ah (ama hawo u dhiganta banaanka) iyadoo la adeegsanayo farsamo ahaan, sida marawaxadda ku jirta nidaamka HVAC ama marwaaxada daaqada furan. siinta hawo u dhiganta waxaa lagu sameyn karaa nadiifiyaha hawada ee HEPA. Furida albaabada iyo daaqadaha, markay suutogal tahay, sidoo kale way caawin kartaa.

Talooyinka caafimaadka Dadweynaha ee nadiifinta hawada si loo hagaajiyo tayada hawada gudaha

Hal ama in kabadan qalabka nadiifinta hawada ku qalabaysan hawo miiraha HEPA ayaa loo isticmaali karaa gudaha. Tani waxay dabanaysaa walxaha badankooda ay la kulmaan. Tani waxay yareyn doontaa xaddiga fayraska ay daka ubaylah noqon karaan.

- Isticmaal qalabka nadiifinta HEPA ee la qaadan karo si loogu kabo nidaamyada HVAC iyo marka uusan jirin nidaamka HVAC. Tani waxay si qaas ah qiimo ugu leedahay meelaha khatarta sare leh sida xafiiska kalkaalisada caafimaadka ama meelaha ay sida caadiga ah ku nool yihiin dadka leh suurtagalnimada sare ee COVID-19 iyo/ama halista sii kordheysa ee qaadista COVID-19. Si taxaddar leh ugu aadi qalabka nadiifinta hawada si qaadashada ay u xannibnaato oo qiiqu u dhaqaajin karo hawo fog intii suurtagalka ah ka hor intaan loo soo qaadin qalabka HVAC ee qiiqa hawada ku jira.
 - Injineerada Shacabka Mareykanka ee kululeynta, qaboojinta, iyo Hawo-qaboojinta (ASHRAE) ayaa soo saartay ilaha soo socda. [Tilmaamaha Nadiifiyaha Hawada Qolka loogu talgalay Yaraynta Covid-19 ee Hawada Meeshaada/Qolkaaga](#)
 - Ururka Soosaarayaasha Qalabka Guriga (AHAM) waxay bixisaa liis ah [Nadiifiyeyaasha Hawada ee la aqoonsan yahay](#). Hubi heerka gaarsiinta hawada nadiifka ah (CADR) si aad u aragto inay ku habboon tahay aagga qolka aad isku dayeysid inaad nadiifiso.
 - Ka fogow nadiifinta hawada ee soo saarta ozone, ama isticmaal qalabka ay caddeeyeen Guddiga Kheyraadka Hawada ee California (CARB): [Liiska Qalabka Nadiifinta Hawada la aqoonsan yahay ee CARB](#).
 - Ilaa oo qaababka isku-dhafka hawada lagu go'aamiyey meel bannaan oo gudaha ah, dhig nadiifiyaha bartamaha qolka/booska ama meel u dhow qof laga yaabo inuu hadlayo halkii uu dhageysan lahaa (tusaale ahaan, macallin fasal ku jira).

- Seynisyahanno ka socota Jaamacadda Colorado Boulder iyo Jaamacadda Harvard ayaa soo saareen qalab¹ si ay isugu daraan nadiifiyaha hawada iyo qeexitaanada heerka hawo siinta si loo gaaro 3-6 isbeddel hawo ah oo la doonayo saacaddiiba fasallada. Milkiileyaasha xarunta iyo hawlwadeenada waxay la tashan karaan xirfadle HVAC si ay u go'aamiyaan haddii ay leeyihiin xaaladahaan iyo sida ay ku gaari lahayeen . Haddii uu nidaamka HVAC aan la heli karin ama xaddiga is-weydaarsiga hawada ee ka furmaya daaqadaha iyo albaabada aan la garanayn, waxaa suurtagal ah in la gaaro is-weydaarsi hawada u dhigma iyadoo lagu darayo tirada habboon ee hawo nadiifiyaha HEPA oo leh awoodda loo baahan yahay.

Talooyinka caafimaadka Dadweynaha ee nidaamyada kuleylinta, hawo siinta iyo hawo qaboojinta

- Hubi in nidaamka HVAC ay si habboon u shaqeeyaan oo ay bixiyaan hawo taya leh gudaha ee la aqbali karo ee heerka deggenaanshaha hadda ee boos kasta. [Heerka ASHRAE 62.1](#) “wuxuu qeexaa heerka qulqulka hawo bannaanka ee ugu yar iyo kuwa lagu taliyay si loo helo tayada hawada gudaha ee la aqbali karo ee meelo badan oo gudaha ah U adeegso adeegyada xirfadleyda HVAC si aad u gaarto waxqabadka ugu wanagsan nidaamka hadda jira ee HVAC
- Kordhi nadiifinta hawada ee nidaamyada HVAC illaa MERV 13 ama ka sii wanagsan. Haddii kale, tiigso qiimeynta ugu sareysa suurtagalka ah ee nidaamka oggol yahay. Xirfadleyda HVAC waxay kaa caawin karaan inay qiimeyaan muhiimada inay kordhiyaan waxtarka nadiifinta. Talaabooyinka dheeraadka ah waxaa ka mid ah
 - Kormeerida guryaha shaandhada iyo sagxadaha si loo xaqiijiyo habboonaanta fiican ee shaandhooyinka.
 - Hubinta in hawadu aysan ku wareegi karin hareeraha shaandhada iyo cubida duleelaha farqiga u dhexeeya shaandhada iyo guryaha.
 - Beddelida miirayaasha sida uu kutaliyay soo saaraha.
- Demi hawo siiye kasta oo dalabka xakameeya (DCV) kaas oo yareeya hawo bixinta iyadoo lagu saleynayo degitaanka ama heerkulka inta lagu jiro saacadaha uu shaqeenaayo. Ku hagaaji marwaaxada “on” beddelka “auto” taas oo si joogto ah ugu shaqeyn doonta marawaxada, xitaa marka kuleylka ama hawa qaboojiyaha aan loo baahnayn.

Qoyaan

Uumatada gudaha qiyaasta boqolkiiba (%RH) ee 40%-60% waa suuragal in la yareeyo gudbinta fayraska ee gudaha ayadoo

- Bixinaayo aariyo qaboojiye ee aan u rooneyn fayraska iyo noolaanshaha jeermiska kale².

¹<https://docs.google.com/spreadsheets/d/1Gv0OhTNtK0esso883z1i03XjmgOoibDTSeRzr25Uv/dw/edit#gid=1836861232>

²<https://www.ashrae.org/file%20library/technical%20resources/covid-19/ashrae-d-co-rp3.pdf>

- Jooktaynta xaaladaha aan kobcinaynin qallajinta xuubka xabka ee dadka muhiimka u ah difaaca jirka ee dabiiciga ah.
- Yareynta xoog-saarida walxaha fayraska ku rara nee hawada

Waxaa lagu talinayaa inaad kahortagto xaaladaha aadka u qalalan laakiin taxadar ah inaad abuuriin jawi aad uqoyan. Waxaan kugula talineynaa inaad la tashato HVAC ama xirfadle adeeg si aad u go'aamiso sida lagu gaaro xaaladahaan. Kormeerida waxaa lagu sameyn karaa kormeerayaasha% RH ee laga heli karo duleelo badan.

Khayraadka

1. Injineerada Shacabka Ameerikaanka ah Kuleleynta, Qaboojinta iyo Hawo-qaboojinta ee (ASHRAE)
 - ANSI/ASHRAE Heerka 62.1-2019 – Hawo siinta Tayada Hawada Gudaha Oo La Aqbali Karo <https://www.ashrae.org/technical-resources/ashrae-standards-and-guidelines>
 - Dhismayaasha ganacsiga <https://www.ashrae.org/technical-resources/commercial>
 - Boggaan waxaa ku jira hal dukuminti oo hagitaan hal bog ah oo loogu talagalay xaaladaha guud <https://www.ashrae.org/technical-resources/covid-19-one-page-guidance-documents>
 - sheybaar
 - Qaab-dhismeedka cunnada yar ee Ku-meel Gaarka ah
 - Dib-Ufurida Dhismayaasha
 - Dhismayaasha Guryaha
 - Nidaamyada HVAC ee Goobta Codbixinta
2. Xarumaha Xakameynta iyo Ka hortaga Cudurka (CDC)
 - Xaruumaha Daryeelka Caruurta iyo Dugsiyada: <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/ventilation.html>
 - Dhismayaasha Xafiiska: <https://www.cdc.gov/coronavirus/2019-ncov/community/office-buildings.html>
 - Dhismayaasha Hawo-qaadista <https://www.cdc.gov/coronavirus/2019-ncov/community/ventilation.html>
3. Hay'ada Illaalada Deegaanka (EPA)
 - [Nadiifiyayaasha Hawada, miirayaasha HVAC, iyo fayraska koroona \(COVID-19\)](#)
4. Ururka Nadaafada Warshadaha Mareykanka
 - [Yareynta Khatarta COVID-19 Isticmaal Xakameynta Injineernimada](#)
5. Waqtiyada New York sharaxaada muhiimada hawo-qaadista ku filan
 - <https://www.nytimes.com/interactive/2021/02/26/science/reopen-schools-safety-ventilation.html>
6. Harvard/Jaamacada Colorado Boulder Hawo nadiifiye iyo xisaabiyaha heerka hawo qaadista

- <https://docs.google.com/spreadsheets/d/1Gv0OhTNtK0esso883z1i03XjmgOoibDTSeRzr25Uvdw/edit#gid=1836861232>

Helitaanka dukumiintiga: Shaqsiyaadka naafada ah ama shakhsiyaadka ku hadla luuqad aan ka aheyn Ingiriiska, OHA waxay ku bixin kartaa warbixinta qaabab kale oo dadban sida fasiraadaha, daabicida farta waaweyn, ama farta indhoolayaasha. Kala xiriir Xarunta Macluumaadka Caafimaadka 1-971-673-2411, 711 TTY ama COVID19.LanguageAccess@dhsosha.state.or.us