بسمه تعالی

**فرم چکیده سخنرانی ژورنال کلاب دانشجویان دکترا ورودی**

دانشکده بهداشت – گروه مهندسی بهداشت محیط

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| **نام و نام خانوادگی دانشجو : عادل مکمل شماره دانشجویی: 9811150003** D:\مشخصات\photo_2018-03-08_21-49-45.jpg    **استاد راهنمای آموزشی: دکتر ندافی**  **تاریخ : 23/ 3/ 1400 ساعت:15** |
| **عنوان مقاله :**  **High energy efﬁciency ventilation to limit COVID-19 contagion in school environments** |
| **چکیده :**  **This study investigates the possibility to contain COVID-19 contagion in indoor environments via increasing ventilation rates obtained through high energy efﬁciency systems combining thermal recovery by heat exchanger and thermodynamic recovery by heat pump. The starting point of this assessment is a procedure to evaluate in naturally ventilated environments, the current infectious risk by using measurements of indoor/outdoor CO 2 concentrations to calculate actual air changes per hour. The method was applied to some typical school environments in Italy. The results indicated very infectious situations with reproduction number R o values up to exceed 13. But, the simulations assessed an extraordinary reduction of indoor viral concentration and consequently of the infection risk by a strong mechanical ventilation. High ventilation rates make facemasks effective even with use levels (from 50%) reasonable also for pupils. This way, R 0 goes down the value one. As regards energy performance, the behavior of an autonomous high efﬁciency air handling unit (HEAHU), to be installed in an existing naturally ventilated classroom, was simulated in the monitored days. The results highlight the ability to achieve a reduction in energy consumption between 60% and 72%.** |