



What is a Construction Vehicle Retrofit Program?

Construction projects increase the operation of non-road equipment (e.g., back hoes, cranes, loader, etc.) and other diesel vehicles (e.g. dump trucks, fuel trucks, haulers, etc.) in local areas. Retrofitting construction equipment with pollution controls can help reduce the negative air quality impacts associated with construction projects.

A construction vehicle retrofit program generally requires diesel equipment that will be used on site to be retrofitted with devices designed to reduce emissions. The programs in place around the country vary quite a bit. In addition to including requirements for installing exhaust controls (e.g., diesel oxidation catalysts), they often include requirements for eliminating excessive idling, burning cleaner diesel fuels (e.g., low sulfur fuel, emulsified diesel fuel), and/or assuring that heavy duty vehicles meet applicable state standards (e.g., smoke standards).

The most successful construction retrofit projects have three main components:

- an effort to educate construction companies about the requirements as well as the retrofit technology;
- contract/bid specification language that clearly articulates the requirements and is enforceable; and
- robust inspection and reporting requirements that ensure accountability.

The Connecticut Department of Transportation included construction retrofit requirements in its bid package for the I-95 New Haven Harbor Crossing Corridor Improvement Program. To date, 152 pieces of equipment have been retrofitted with diesel oxidation catalysts. Other agencies and organizations in New England are adopting similar requirements, including: the Massachusetts Division of Capital Asset Management (DCAM), the Massachusetts Highway Department, the Dana Farber Cancer Institute (DFCI), and Harvard University. Below is an example of contracting language requiring advanced pollution control technology and/or cleaner fuels.

NOTICE TO CONTRACTOR – DIESEL VEHICLE EMISSIONS CONTROLS

All Contractor and Sub-contractor diesel powered non-road construction equipment with engine horsepower (HP) ratings of 60 HP and above, that are on the project or are assigned to the contract for a period in excess of [5-30] consecutive calendar days, shall be retrofitted with Emission Control Devices and/or use Clean Fuels to reduce diesel emissions.

The reduction of emissions of carbon monoxide (CO), hydrocarbons (HC), nitrogen oxides (NOx), and particulate matter (PM) will be accomplished by installing Retrofit Emission Control Devices and/or by using less polluting Clean Fuels.

The Retrofit Emission Control Devices shall consist of oxidation catalysts, or similar retrofit equipment control technology that (1) is included on the Environmental Protection Agency (EPA) and/or California Air Resource Board (CARB) *Verified Retrofit Technology List* and (2) is verified by EPA and/or CARB to provide a minimum emissions reduction of 20% PM, 40% CO, and 50% HC.

The Clean Fuels shall consist of low NOx and PM emission diesel fuel that (1) can be used without engine modification, (2) is certified to provide a minimum emissions reduction of 30% PM and 10% NOx when compared to No. 2 Diesel Fuel, and (3) is included on the California Air Research Board (CARB) Verification List.

Construction shall not proceed until the contractor submits a certified list of the non-road diesel powered construction equipment that will be retrofitted with emission control devices and/or that will use Clean Fuels. The list shall include (1) the equipment number, type, make, and contractor/sub-contractor name; (2) the emission control device's make, model and EPA verification number; and/or (3) the type and source of fuel to be used.

If any diesel powered non-road construction equipment is found to be in non-compliance with this specification, the contractor will be issued a Notice of Non-Compliance and given a 24 hour period in which to bring the equipment into compliance or remove it from the project. If the contractor then does not comply with these "Diesel Vehicle Emissions Controls", the Engineer shall withhold all payments for the work performed on any item(s) on which the non-conforming equipment was utilized for the time period in which the equipment was out of compliance.

Any costs associated with this "Diesel Vehicle Emissions Controls" notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section [X] – "Claims".
