

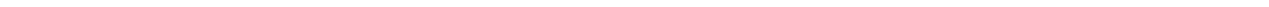
# **Change Order Protocol**

**Toronto Construction Association**

**Greater Toronto Electrical Contractors Association**

**Mechanical Contractors Association of Toronto**

**Toronto Sheet Metal Contractors Association**



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The Associations would like to acknowledge the contribution and participation of the following members of the Change Order Protocol Task Force:

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# Change Order Protocol

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## Introduction

Changes in the scope of work on a project have become an inevitable part of the construction process. The size and number of changes on a particular project can significantly alter the cost of the project. If handled improperly, changes can also lead to disputes and even litigation between the various parties on a project. The purpose of this Change Order Protocol is to provide a fair and reasonable process for the costing and pricing of change orders.

## Guiding Principles

- Changes in the scope of work may be inevitable, however a greater effort to diminish the volume of contract changes on construction projects is strongly encouraged.
- When changes become necessary, change orders should have a 30 days maximum turnaround. Contractors should submit an appropriately prepared quotation within 15 days and owners should approve/reject within 15 days.
- *Change Orders* should be fairly and reasonably priced and payment of approved changes should conform to contract terms.
- Contractors are entitled to overhead and profit.
- Reasonable disclosure of costs is encouraged, while excessive requests can be counter-productive, cause delays, and give rise to additional costs.
- If it is necessary to issue a *Change Directive* in advance of approval pricing and all related approvals, this formal direction to proceed should not diminish the urgency to negotiate a final change order price.
- The parties should be proactive in resolving disputes, and every effort should be made to ensure that these disputes will not impact the balance of the project.
- Statutory holdbacks are a legal requirement; additional holdbacks are redundant and lead to avoidable disputes.

## Change Directive

According to General Condition 6.3 of the CCDC2 *Standard Prime Contract* when an owner requires a change in the work, and;

- the change is urgently required and it would not be expedient to reach agreement on the price, or
- there has been a failure of the parties to agree on a price

the Owner may issue a *Change Directive*.

Upon receipt of a *Change Directive*, the Contractor must proceed promptly with the change on a cost plus basis as per CCDC2 general condition Article 6.3.

Prior to executing any work relating to a Change Directive the owner will advise as to the method of validation of man hours spent and materials and equipment used. The owner will designate his authorized representative, authorized to approve the hours shown on the Time Sheets and the related materials and equipment used to perform the work. The contractor will be able to bill for the approved labour, material, equipment and other expenses incurred under the change directive on the monthly progress bill.

Supplementary instructions such as Site Instructions, Field Orders, or Stop Work Orders, are not *Change Directives*.

After a *Change Directive* has been issued, both parties *must* expeditiously continue efforts to achieve agreement on the price of the change, and then record this agreement in a *Change Order*.

## **Change Order**

A *Change Order* is used when the Owner and Contractor agree on a price and the changes in scope of work and schedule.

## **Labour Rate\***

The Labour Rate is the actual fully burdened cost per hour of labour consumed. It consists but is not limited to the following:

- Base Rate
- Vacation/Stat Pay
- Union Deductions
- Legislated Burdens
  - EHT
  - WSIB
  - EI
  - CPP
  - RST on H/W
- Expendable Small Tools
- Additional Unionized Charges
- Finance Payroll
- Rest Breaks
- Idle Time
- Safety
  - Job Box Talks
  - WHMIS
  - Fall Protection
  - Personal Protective Equipment
  - Committees
- Labour Warranties
- Parking

*\* Labour Rate is on a journeyman basis.  
The lower productivity rate for apprentices  
is offset by the hourly rate.*

## **Manhours Calculation**

In absence of agreed to pre-authorized rates and units, it is strongly recommended that industry standard Labour Units are used in calculating labour units required to complete a change notice. Each change may have a variety of non-typical or abnormal factors that will require adjustments. Factors that should be considered include:

- Site Conditions – Inadequate lighting and Housekeeping
- Clean up
- Material Handling – Unloading, Storing, Moving
- Scheduling
- Time Keeping
- Mobilization and Demobilization
- Labour Warranties(*if not included in labour rate*)
- Estimating

- Fabrication Drafting
- Measuring
- Printing
- Record Drawings and As Built
- Interference Drawings
- LEED Requirements
- Garbage Sorting, Tagging, Disposing
- Installation Height – Installations above 10 feet require extra equipment and men.
- Multi Storey Factor – Labour adjustment must be made for taller buildings to reflect the rate of productivity loss.
- Environment Conditions – Extreme weather conditions either heat, humidity or cold may result in productivity loss. (*Dust, restricted access, occupied premises, remote areas.....*)
- Availability of Personnel – When an adequate supply of personnel is not available, the loss of productivity must be taken into account.
- Stacking of the Trades – A change order may require many trades to perform their work concurrently and in a limited work area resulting in productivity losses.
- Abnormal Work Schedule – Deviations from a normal work schedule will have an impact on labour productivity and required supervision.
- Crew Size Inefficiency – Changes may require the use of larger than planned workforces.

Labour units shall be derived from the NECA Manual of Labour Units\*, MCAA Labour Estimating Manual\*, SMACNA Manual\* and other such standardized trade units that may exist. It is understood that mitigating circumstances may exist that impact such standardized units.

\*On a journeyman basis

## FACTORS AFFECTING PRODUCTIVITY

There is a need to discuss the adverse effects on labour productivity resulting from causes beyond the direct control of the contractor.

A study of these productivity factors may be helpful in preparing original estimates and change orders. The individual items and titles proposed, cover a description of conditions without necessarily including each detailed condition that may be involved. The values are a percentage to add onto labour hours of the change.

The factors listed are intended to serve as a reference only. Individual cases could prove to be too high or too low.

PERCENTAGE OF LOSS IF  
CONDITION:

Minor      Average      Severe

- |    |   |     |     |     |
|----|---|-----|-----|-----|
| 1. | <b>STACKING OF TRADES:</b> Operations take place within physically limited space with other contractors. Results in congestion of personnel, inability to locate tools conveniently, increased loss of tools, additional safety hazards and increased visitors. Optimum crew size cannot be utilized. | 10% | 20% | 30% |
|----|---|-----|-----|-----|

2.	<b>MORALE AND ATTITUDE:</b> Excessive hazard, competition for overtime, over-inspection, multiple contract changes and rework, disruption of labour rhythm and scheduling, poor site conditions, etc.	5%	10%	15%
3.	<b>REASSIGNMENT OF MANPOWER:</b> Loss occurs with move-on, move-off men because of unexpected changes, excessive changes, or demand made to expedite or reschedule completion of certain work phases. Preparation not possible for orderly change.	5%	10%	15%
4.	<b>CREW SIZE INEFFICIENCY:</b> Additional men to existing crews "breaks up" original team effort, affect labour rhythm. Applies to basic contract hours also.	10%	20%	30%
5.	<b>CONCURRENT OPERATIONS:</b> Stacking of this contractor's own force. Effect of adding operation to already planned sequence of operations. Unless gradual and controlled implementation of additional operations made, factor will apply to all remaining and proposed contract hours.	5%	15%	25%
6.	<b>DILUTION OF SUPERVISION:</b> Applies to both basic contract and proposed change. Supervision must be diverted to (a) analyze and plan change, (b) stop and replan affected work, (c) take off, order and expedite material and equipment, (d) incorporate change into schedule, (e) instruct foreman and journeyman, (f) supervise work in progress, and (g) revise punch lists, testing and start-up requirements.	10%	15%	25%
7.	<b>LEARNING CURVE:</b> Period of orientation in order to become familiar with changed condition. If new men are added to project, effects more severe as they learn tool locations, work procedures, etc. Turnover of crew.	5%	15%	30%
8.	<b>ERRORS AND OMISSIONS:</b> Increases in errors and omissions because changes usually performed on crash basis, out of sequence or cause dilution of supervision or any other negative factors.	1%	3%	6%

9.	<b>BENEFICIAL OCCUPANCY:</b> Working over, around or in close proximity to owner's personnel or production equipment. Also badging, noise limitations, dust and special safety requirements and access restrictions because of owner. Using premises by owner prior to contract completion.	15%	25%	40%
10.	<b>JOINT OCCUPANCY:</b> Change causes work to be performed while facility occupies by other trades and not anticipated under original bid.	5%	12%	20%
11.	<b>SITE ACCESS:</b> Interferences with convenient access to work areas, door man-lift management or large and congested worksites.	5%	12%	30%
12.	<b>LOGISTICS:</b> Owner furnished materials and problems of dealing with his storehouse people, no control over material flow to work areas. Also contract changes causing problems of procurement and delivery of materials and rehandling of substituted materials at site.	10%	25%	50%
13.	<b>FATIGUE:</b> Unusual physical exertion. If on change order work and men return to base contract work, effects also affect performance on base contract.	8%	10%	12%
14.	<b>RIPPLE:</b> Changes in other trades' work affecting our work such as alteration of our schedule. A solution is to request, at first job meeting, that all change notices/bulletins be sent to our Contract Manager.	10%	15%	20%
15.	<b>OVERTIME:</b> Lowers work output and efficiency through physical fatigue and poor mental attitude.	10%	15%	20%
16.	<b>SEASON AND WEATHER CHANGE:</b> Either very hot or very cold weather.	10%	20%	30%

## Labour Supervision

Labour Supervision is the costs of providing direction and supervision on projects. It includes:

- Foremen
- General Foremen

## Project Supervision

Project Supervision is the cost arising from the coordination and management of a project. It includes:

- Superintendent
- Project Coordinator
- Project Manager

## Material

Material cost must be fair to both parties and mutually agreed upon.

The price will include possible loss due to price escalation, waste, damage, vandalism, theft plus all applicable freight and taxes.

The price will be based on Trade published prices like Allpri\$er and Trade Service and adjusted for the specific project conditions.

## Shop Expenses

Are those expenses associated with the operations and maintenance of fabrication facilities.

The major cost categories are the following.

- Facilities
- Shop Equipment
- Operating Costs

## Job Cost/Expenses

Job Costs/Expenses are all costs necessary for the performance of a contract that cannot be tied directly to the material, labour or subcontractors costs.

- |                         |   |
|-------------------------|---|
| ▪ Equipment             | ▪ Travel Allowance                        |
| ▪ Equipment Rental      | ▪ Parking( <i>if not in labour rate</i> ) |
| ▪ Site Facilities       | ▪ Bonding                                 |
| ▪ Freight Rates         | ▪ Site Clerical                           |
| ▪ Storage               | ▪ Security                                |
| ▪ Permits               | ▪ Consumables                             |
| ▪ Inspection            | ▪ Insurance                               |
| ▪ Direct Room and Board | ▪ Other .....                             |



## **Impact Costs**

Impact Costs refer to the effect that *Change Orders* have on the rest of the project.

## ***Liquidated Damages***

*Liquidated damages are a pre-determined sum agreed to in a contract that is recoverable if specific conditions, such as schedule, of that contract are not met. Change Orders may effect and even nullify liquidated damages clauses contained in contracts.*

## **Overhead**

Overhead expenses are administrative expenses of a business which cannot be allocated to any specific project, but are necessary for the business to operate.

- Home office rental, maintenance, utilities, and expenses
- Home office equipment, furniture, and supplies
- Property taxes, business licenses, and auto insurance
- Dues and subscriptions
- Postage and courier (non-job related)
- Advertising and telephone
- Legal and accounting fees
- Sales and marketing
- President's salary and benefits
- Sales force salary and benefits
- Dispatcher's salary and benefits
- Purchaser's salary and benefits (Estimating only)
- Clerical staff salary and benefits
- Estimators' salary and benefits (except for Change Orders)

## **Profit**

Profit is to compensate for risk, effort and return on investment.