

## Design Criteria Compromises and Changes Engineering 3

| Based on review of contractor's technical proposal<br>Y=yes included change in the bid<br>N=no did not include<br>?=not sure. |   |                        |                               |                  |                            |            |                                 |
|---|---|------------------------|-------------------------------|------------------|----------------------------|------------|---------------------------------|
|   | Impact on =>                              | OMP Costs <sup>1</sup> | Life-cycle Costs <sup>2</sup> | User Convenience | Functionality/ Performance | Aesthetics | Reduced Infrastructure Capacity |
| <b>ARCHITECTURAL AND STRUCTURAL</b>   |   |                        |                               |                  |                            |            |                                 |
| Y   | Reduce lab floors vibration criteria      |                        |                               | √                | √                          |            | √                               |
| Y   | Reduce office floors vibration criteria   |                        |                               | √                | √                          |            | √                               |
| ?   | Revise slate lobby floor to bare concrete |                        |                               |                  |                            | √          |                                 |
| N   | Allow same sex toilet only per floor      |                        |                               | √                | √                          |            | √                               |
| Y   | Delete roof mechanical penthouse          | √                      | √                             |                  |                            | √          |                                 |
| ?   | Allow flatter roof slopes                 | √                      | √                             |                  | √                          |            |                                 |
| ?   | Reduce roof warranty to 5 years           | √                      | √                             |                  |                            |            |                                 |
| Y   | Delete supports for wall hung bookshelf   |                        | √                             | √                | √                          |            |                                 |
| Y   | Revise metal stud wall design criteria    |                        |                               |                  |                            | √          |                                 |
| ?   | Allow knockdown aluminum door frames      | √                      | √                             |                  | √                          |            |                                 |
| Y   | Stop office partitions at ceiling         |                        |                               | √                | √                          |            |                                 |
| Y   | Allow alternate structural systems        |                        |                               |                  |                            |            | √                               |
| ?   | Delete lab wing corridor ceilings         |                        |                               |                  |                            | √          |                                 |
| ?   | Eliminate double doors at some labs       |                        |                               | √                |                            |            | √                               |
| Y   | Delete operable walls                     |                        |                               | √                |                            |            |                                 |
| <b>LABORATORY FURNISHING</b>  |   |                        |                               |                  |                            |            |                                 |
| Y   | Change casework to standard finish        |                        |                               | √                |                            |            |                                 |
| Y   | Change drawer fronts to particleboard     | √                      | √                             | √                |                            |            |                                 |
| Y   | Reduce drawer guides holding weight       |                        | √                             | √                |                            |            |                                 |
| <b>FIRE SUPPRESSION</b>   |   |                        |                               |                  |                            |            |                                 |
| Y   | Increase piping flow velocity criteria    |                        |                               |                  |                            |            | √                               |
| <b>PLUMBING</b>   |   |                        |                               |                  |                            |            |                                 |
| Y   | Delete extra capacity reserve             |                        | √                             | √                | √                          |            | √                               |
| Y   | Revise rainfall design to code minimum    |                        |                               |                  |                            |            | √                               |
| Y   | Increase piping flow velocity criteria    | √                      | √                             | √                | √                          | √          | √                               |
| Y   | Delete isolation of toilet water piping   |                        |                               | √                | √                          |            | √                               |
| Y   | Allow waste pipe slope to code minimum    | √                      |                               |                  | √                          |            |                                 |

<sup>1</sup> Including energy/utilities expense.

<sup>2</sup> Including earlier replacement costs and greater expense to renovate space as program changes.

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| ?   | Delete hot water to public lavatories                                  |                        |                               | √                |                            |            | √                               |
| Y   | Delete separate industrial water system                                | √                      | √                             | √                | √                          |            | √                               |
|   |  |                        |                               |                  |                            |            |                                 |
|   | <b>HVAC</b>  |                        |                               |                  |                            |            |                                 |
| Y   | Delete extra capacity requirement                                      |                        | √                             | √                | √                          |            | √                               |
| Y   | Reduce the safety factor requirement                                   |                        | √                             | √                | √                          |            | √                               |
| ?   | Allow increased coil face velocities provided energy use not increased | √                      | √                             |                  |                            |            | √                               |
| Y   | Allow one row reheat coil  |                        |                               |                  | √                          |            | √                               |
| Y   | Some coils to have aluminum fins                                       | √                      | √                             |                  |                            |            | √                               |
| Y   | Increase piping flow velocity criteria                                 | √                      | √                             |                  | √                          |            | √                               |
| Y   | Allow many more offices / thermal zone                                 | √                      |                               | √                | √                          |            | √                               |
| Y   | Reduced toilet exhaust airflow to code                                 |                        |                               |                  |                            | √          | √                               |
| Y   | Design only for future fume hoods shown                                |                        | √                             | √                | √                          |            | √                               |
| Y   | Allow return air ceiling plenums                                       | √                      |                               | √                | √                          |            | √                               |
| Y   | Revise allowable duct aspect ratio                                     | √                      | √                             |                  | √                          |            |                                 |
| Y   | Allow longer flexible ducts  | √                      | √                             |                  |                            |            |                                 |
| Y   | Allow tie rods for ductwork construction                               | √                      | √                             |                  |                            |            |                                 |
| Y   | Relax sizing criteria for terminal units                               | √                      |                               | √                |                            |            | √                               |
| ?   | Allow use of nonmetallic exhaust duct                                  |                        | √                             |                  |                            |            | √                               |
|   |  |                        |                               |                  |                            |            |                                 |
|   | <b>ELECTRICAL</b>  |                        |                               |                  |                            |            |                                 |
| Y   | Delete extra capacity requirement                                      |                        | √                             | √                | √                          |            | √                               |
| Y   | Reduce design safety factors   |                        |                               | √                | √                          |            | √                               |
| Y   | Delete isolated ground receptacles                                     |                        |                               | √                |                            |            | √                               |
| Y   | Diversity and demand per code minimum                                  |                        | √                             | √                |                            |            | √                               |
| Y   | Reduce foot-candle levels for lighting                                 |                        |                               | √                |                            |            |                                 |
| Y   | Allow more wires per conduit   |                        | √                             | √                |                            |            | √                               |
| Y   | Allow use of metal clad cable  |                        | √                             |                  |                            |            | √                               |
| Y   | Allow use of ½" conduit  |                        |                               | √                |                            |            | √                               |
| Y   | Allow main panels with branch circuits                                 |                        | √                             |                  |                            |            | √                               |
| Y   | Revise transformer base isolation                                      |                        |                               |                  |                            | √          |                                 |
| Y   | Delete software for electric meters                                    | √                      |                               |                  |                            |            |                                 |
| Y   | Revise lighting circuit minimum amps                                   | √                      | √                             | √                |                            |            | √                               |
| Y   | Lighting panelboards sized on load                                     |                        |                               |                  |                            |            | √                               |
| Y   | Relax transformer sound levels   |                        | √                             | √                |                            |            | √                               |
| ?   | Allow battery powered emergency lights                                 | √                      | √                             |                  |                            |            | √                               |

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|   |   |                        |                               |                  |                            |            |                                 |
|   | <b>MISCELLANEOUS</b>                      |                        |                               |                  |                            |            |                                 |
| Y   | Reduce tree sizes                         |                        |                               |                  |                            | √          |                                 |
| Y   | Eliminate utility tunnel extension to EU3 | √                      | √                             |                  |                            |            | √                               |
| Y   | Eliminate proprietary specifications      | √                      | √                             | √                | √                          |            |                                 |