



CALIFORNIA PACIFIC MEDICAL CENTER

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Dans le cadre du projet du CHUQ et du mandat de la SQI pour la préparation de l'étude d'opportunité sur le déploiement du BIM par le gouvernement du Québec, deux missions ont été proposées dans le but de capturer les leçons apprises des initiatives les plus avancées dans le domaine. La première mission ciblait les pratiques développées par Sutter Health, une organisation californienne à but non lucratif consacrée à la fourniture de soins de santé dans l'ouest des États-Unis. Cette dernière, a développé un mode unique de réalisation de projets qui lui a permis d'optimiser son processus de réalisation de projet dû au manque de prédictibilité et l'inflation galopante des coûts de construction d'hôpitaux. La deuxième mission porterait sur la dimension publique du déploiement du BIM réalisé par le gouvernement norvégien ces dix dernières années.

Cette première mission ciblait donc l'équipe de projet du projet du Centre Médical *California Pacifique (California Pacific Medical Center (CPMC))*. Elle s'est déroulée du 15 au 17 septembre 2014 aux bureaux de projet du CPMC à San Francisco. Des représentants de la Société Québécoise des Infrastructures (SQI), du Centre Hospitalier Universitaire de Québec (CHU) ainsi que des représentants du Groupe de Recherche en Intégration et en Développement Durable en environnement bâti (GRIDD) de l'École de Technologie Supérieure (ÉTS) formaient la délégation dont l'objectif principal était d'observer et d'échanger avec les parties prenantes d'une équipe de projet ayant implanté des approches et des pratiques novatrices dans le domaine de la réalisation de projet de construction. La mission s'est concentrée sur la visite et l'observation de l'organisation et de la dynamique du bureau de projet (*Big Room*) du California Pacific Medical Center. La visite du projet CPMC a permis de faire plusieurs constats par rapport à la mise en place d'environnements collaboratifs autour des technologies BIM qui facilitent et optimisent la réalisation de projet :

1. L'approche Lean à la construction dont : le système *Last Planner*, les mesures de performances, dont le *Planned Percent Complete (PPC)*, les rencontres journalières de vérification (*Check in Meetings*) et le *Takt* planning. Le raisonnement guidant l'implantation de cette approche réside dans le fait que les méthodes traditionnelles de suivi de projet tel que les diagrammes Gantt et la méthode du chemin critique sont mésadaptés à la planification et au suivi de projets complexes avec des milliers d'activités tels que les projets de construction. La philosophie Lean vise à contrôler la production afin de réduire la variabilité du projet au moyen de la cartographie des processus et de la valeur, ce qui permet de gérer le projet au niveau de la tâche.
2. La Réalisation de Projet Intégrée (RPI) dont : le *Integrated Form of Agreement (IFOA)*; le *Target Value Design* et le *Target Costing*, le *Pain Share/Gain Share* et l'intégration de l'équipe de projet au sein d'un *Big Room*. Le raisonnement guidant l'implantation de cette approche réside dans le fait que l'organisation traditionnelle des équipes de projet de construction introduit des barrières contractuelles et légales parmi les parties prenantes du projet. Cette fragmentation de l'équipe de projet et des phases du projet résulte plus qu'autrement dans la réalisation de projet sous-optimale et conflictuelle.

3. Le Building Information Modeling (BIM) dont : le design for fabrication; la maquette comme source d'information ayant autorité, le développement de la maquette par système, le programme de planification de tâches vPlanner et l'intégration de la validation de la maquette (coordination, détection des interférences, etc.) et le système Last Planner. Le raisonnement guidant l'implantation de cette approche réside dans le fait que les technologies déployées actuellement dans le cadre de projet de construction sont déployées selon les pratiques traditionnelles de réalisation de projet; leur utilisation est calquée sur ce qui a toujours été fait, dont l'expérience nous démontre qu'il s'agit de pratiques qui introduit plusieurs problématiques en cours de projet. Les nouvelles approches telles que le BIM permettent une intégration technologique plus importante de l'équipe de projet. Par contre, le BIM n'est qu'un outil dont le déploiement est lourdement influencé par les processus de réalisation de projet et l'organisation du travail et de l'équipe de projet.

En effet, il importe de mentionner que les trois approches mentionnées ont été implantées en parallèle et non de manière isolée. La volonté derrière l'implantation de ces approches était l'optimisation du projet et du processus de réalisation de projet. L'expérience nous démontre que, notamment dans le cadre de l'implantation du BIM, l'enjeu du déploiement technologique associé au BIM n'est pas de nature technologique, mais plutôt de nature organisationnelle et procédurale. En effet, le déploiement du BIM uniquement sans modifications du mode de réalisation, des pratiques professionnelles et de l'environnement contractuel risque d'engendrer des coûts supplémentaires et de ne pas offrir les bénéfices escomptés dans le déploiement de ces technologies.

Dans le cadre du projet du CHU de Québec et dans le contexte plus large de la SQI, ce sera un défi de taille d'implanter les approches discutées; le développement de l'environnement présenté dans ce rapport étant le résultat de 10 ans d'évolution initiés par Sutter Health. Par contre, ce défi est loin d'être impossible à réaliser. Le projet du CHUQ représente une opportunité unique d'intégrer les pratiques observées ou discutées dans le cadre du projet CPMC. Ainsi, la SQI et l'équipe de projet du CHU peuvent mettre en place ces approches et ces pratiques observées afin, entre autres, d'améliorer la prédictibilité des coûts et des échéanciers, de réduire de façon substantielle les coûts de projet et d'opérations (certaines études ont démontré jusqu'à 30 % d'économie de coût) et de maximiser la génération de valeur par une optimisation des besoins et des solutions produites. En effet, ce projet pourrait devenir un exemple de meilleures pratiques de classe mondiale et pourrait agir en tant que catalyseur pour l'industrie québécoise de la construction. Plusieurs options s'offrent à la SQI afin de mettre en place ces approches et pratiques novatrices, telles que celles déployées dans le cadre de projets publics canadiens, notamment l'hôpital de Moose Jaw en Saskatchewan et le Campus de St Jérôme de l'Université de Waterloo. Cependant, il doit y avoir une volonté forte de la part du gouvernement et des dirigeants du projet du CHU ainsi qu'une gouvernance importante afin d'aller de l'avant et d'assurer le bon déploiement des approches présentées dans ce rapport.

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1 INTRODUCTION

Une délégation formée de représentants de la Société Québécoise des Infrastructures (SQI), du Centre Hospitalier Universitaire de Québec (CHU) ainsi que du Groupe de Recherche en Intégration et en Développement Durable en environnement bâti (GRIDD) de l'École de Technologie Supérieure (ÉTS), ci-après nommé délégation SQI/CHU/ÉTS, a fait la visite de l'équipe de projet California Pacific Medical Center (CPMC) du 15 au 17 septembre 2014. La visite s'est déroulée aux bureaux de projet du CPMC à San Francisco. Elle avait les objectifs suivants :

1. Observer une équipe de projet de conception et construction intégrée travaillant sur un projet hospitalier majeur ayant déployé des approches novatrices à la réalisation de projet
2. Rencontrer et échanger en profondeur avec un représentant du client, un représentant de l'entrepreneur général, tous deux partenaires, et avec un représentant de l'entreprise responsable pour l'implantation et la gestion de ces approches novatrices, particulièrement le Building Information Modeling (BIM) et l'approche Lean.
3. Faire le point sur ces approches novatrices et échanger sur les opportunités qu'elles offrent et leur application pour les projets de la SQI, principalement le projet du nouveau CHU à Québec.

Les personnes rencontrées étaient Dan Conwell, le directeur de la planification et de l'architecture pour Sutter Health (le client), Will Lichtig, le vice-président du développement des affaires et des processus pour Boldt (l'entrepreneur général) et le père des contrats IFOA, et Samir Emdanat, le directeur des services de gestion pour Ghafari (l'entreprise responsable pour l'implantation et la gestion du BIM et du Lean dans le projet). L'équipe de projet observée était celle du CPMC qui travaillait sur le projet du nouvel hôpital Van Ness – Gery. Les activités auxquelles la délégation SQI/CHU/ÉTS a participé se sont déroulées principalement au bureau de projet. L'horaire complet de la visite se trouve en annexe 1. Ce rapport présente le contexte du client, Sutter Health, le contexte du projet du CPMC, de même que les pratiques et les approches observées. Le rapport se termine avec des constats faits lors de la visite.

2 CONTEXTE DU CLIENT

En 2002, le client, le groupe médical Sutter Health, faisait face à une importante problématique de renouvellement de ses actifs immobiliers dû aux exigences en matière de renforcement sismique très strictes pour les centres de soins primaire, passé comme loi en 1994. En fonction de cette loi, plusieurs des bâtiments du groupe ne seraient plus admissibles pour être accrédités à partir du 1er janvier 2013. Ainsi l'organisme à but non lucratif cherchait à effectuer un volume important de travail en peu de temps. Ceci poussa Sutter Health à trouver des solutions de remplacement au mode traditionnel de réalisation de projet qui, dans leur expérience, résultait en des dépassements de coûts et d'échéancier importants et se soldait par des litiges prolongés sur leurs projets majeurs. De plus, Sutter Health, étant dans un domaine hautement spécialisé, fait face à un manque de main-d'œuvre spécialisée capable de livrer des projets d'hôpitaux. Ainsi, afin de devenir un client préféré, pour lequel les fournisseurs de services voudraient toujours travailler, l'organisme devait se démarquer de sa concurrence, soit les autres donneurs d'ouvrage dans le domaine de la santé. Sutter Health s'aligna donc avec des chercheurs de l'université Berkeley en Californie afin de développer et implanter une approche offrant plus de fiabilité et de rigueur pour leurs projets. C'est ainsi que le groupe se tournât vers le Lean Construction, la réalisation de projet intégrée (RPI - *Integrated Project Delivery* (IPD)) et le *Building Information Modeling* (BIM). C'est en 2004 que Sutter Health a entrepris le virage vers l'approche Lean qui permet de contrôler la fiabilité des projets et d'éliminer les sources de gaspillage afin de générer plus de valeur. Par contre, plusieurs de leurs fournisseurs de services trouvaient que les modes contractuels du temps étaient mal adaptés aux demandes du client, contraignant l'implantation de l'approche Lean, ce qui limitait les possibilités de gains. C'est ainsi que la RPI a vu le jour chez Sutter Health, notamment au moyen de la création du *Integrated Form of Agreement (IFOA)*, le contrat liant toutes les principales parties prenantes du projet au client. En parallèle, le BIM était en émergence aux États-Unis et cadrait dans la philosophie de collaboration et génération de la valeur mise de l'avant par le Lean et la RPI. Le premier projet d'envergure sur lequel ont été implantées ces approches est le projet du Castro Valley Medical Center (Annexe 2).

Ces trois approches ont été implantées en parallèle et non de manière isolée. L'expérience nous démontre que, notamment dans le cadre de l'implantation du BIM, l'enjeu du déploiement technologique associé au BIM n'est pas de nature technologique, mais plutôt de nature organisationnelle et procédurale. En effet, le déploiement du BIM uniquement, sans modifications du mode de réalisation, des pratiques professionnelles et de l'environnement contractuel risque d'engendrer des coûts supplémentaires et n'offrira pas les bénéfices escomptés. Les trois approches, le Lean, la RPI et le BIM se complètent et sont fortement liés dans une optique d'optimisation globale de réalisation de projet. Sutter Health, en tant que client, peut mandater ces approches et ainsi pousser leur déploiement dans le cadre de leurs projets.

Finalement, le client adopte une approche relationnelle avec ses fournisseurs de services. Ainsi, en 2004, il a invité la grande majorité de ses fournisseurs pour un atelier de 2 jours qui avait

comme objectif d’annoncer le virage que prenait Sutter Health en matière de réalisation de projet et d’éduquer ces fournisseurs sur les implications de ce virage. De plus, avec cette approche relationnelle, Sutter Health choisit très judicieusement ses fournisseurs de service sur chaque projet selon leur expérience et leur expertise selon un système de sélection basé sur des critères qui misent sur la valeur ajoutée qu’offre le fournisseur, soit le choix par avantages (*choosing by advantage*) une composante du système de la meilleure valeur (*best value system*). Ceci garantit une continuité des services et offre la possibilité de développer et de réutiliser des connaissances liées aux innovations développées au cours de projets antérieurs.

3 PRATIQUES ET APPROCHES OBSERVÉES

Les approches novatrices à la réalisation de projet implantés dans le projet du CPMC, discutés ou observés dans le cadre de la visite au bureau de projet du Campus Van Ness Geary, ont été établies suivant une logique précise. Cette logique est au cœur du réalignement stratégique effectué par Sutter Health : Le client, voulant maximiser son investissement et gérer son portefeuille de travaux imposant, a pris les moyens pour développer un environnement collaboratif au sein duquel l’objectif principal demeure la réalisation d’un bâtiment de qualité à l’intérieur des budgets et de l’échéancier prescrit. Le client a ainsi mandaté l’implantation des principes du *Lean construction* soient utilisés dans ce projet. Afin de s’assurer que ces principes soient bel et bien implantés de manière cohérente, le client a signé un formulaire d’entente intégrée (IFOA) avec le noyau de l’équipe de projet, soit l’architecte et l’entrepreneur. En parallèle, le client a exigé que le BIM soit utilisé pour des fins de fabrication des composantes du bâtiment. Ces approches s’inscrivent dans une ou plusieurs dimensions qui sont reliées : les processus, l’organisation, la technologie. Ces dimensions se déploient à l’intérieur d’un contexte de projet plus ou moins défini (Figure 1).

Pour assurer l’implantation et le déploiement réussi de ces approches, le client a engagé la firme Ghafari et associés. Cette firme est responsable de la formation et de l’éducation de l’équipe de projet de même que l’intégration du BIM et de l’approche Lean dans le projet. Elle s’assure du bon déroulement et de l’implication constante des approches préconisées par le client.

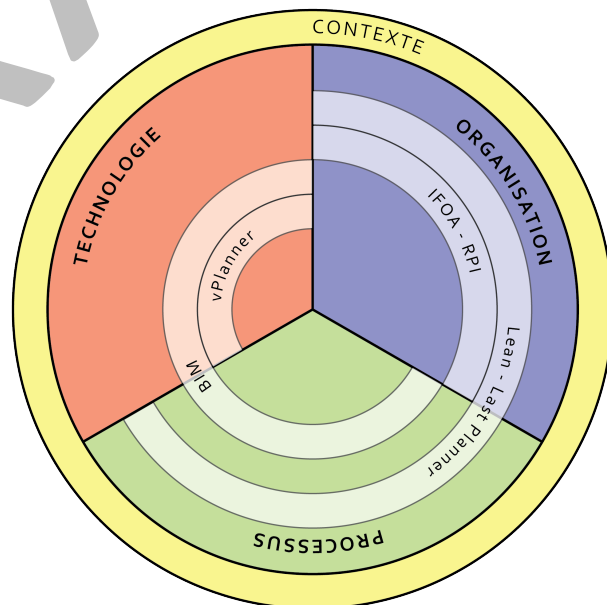


Figure 1 - Les dimensions de l'approche stratégique à la réalisation de projet

3.1 CONTEXTE DU PROJET¹

Le California Pacific Medical Center est un projet d'environ 2,2 milliards \$ (\$ US). Le projet est distribué sur trois sites : le campus Van Ness et Geary, le campus St Luke's et le campus Davies. Le tableau suivant offre un survol des caractéristiques des trois projets :

Table 1 - Survol des sites du CPMC

	Van Ness - Geary	St Luke's	Davies
Budget	S.O.	S.O.	S.O.
Échéancier	Février 2019	Octobre 2019	S.O.
Usage	Hôpital bureaux médicaux Stationnement souterrain	Hôpital	Bureaux médicaux
Superficie	740 000 pi ² (hôpital) 253 000 pi ² (bureaux) 376 000 pi ² (stat.)	215 000 pi ² .	S.O.
# de lits	274 lits	120 lits	S.O.
Type de projet	Nouvelle construction	Rénovation	Nouvelle construction
LEED	Certifié + Argent	Certifié	S.O.
Avancement	En construction - fondations	En construction - démolition sélective	À l'étude



Figure 2 - Rendu du Campus Van Ness et Geary

¹ <http://cpmc2020.org/> accédé le 19 septembre 2014

Le projet visité était celui du Campus Van Ness et Geary. L'équipe de projet est composée des parties prenantes suivantes :

Table 2 - Liste des Parties Prenantes du Projet du Campus Van Ness et Geary

Client	Sutter Health
Architecte	Smith Group
Entrepreneur Général	Herrero Boldt
Ingénieur en mécanique et en plomberie	Ted Jacobs Engineering Group
Ingénieur en électricité	Silverman & Light
Ingénieur en structure	Degenkolb Engineers
Entrepreneur/conception assistée en structure métallique	Herrick Steel
Entrepreneur/conception assistée en mécanique	Southland Industries
Entrepreneur/conception assistée en plomberie	Southland Industries
Entrepreneur/conception assistée en électricité	Rosedin Electrical
intégration de projet Lean/BIM	GHAFARI Associates

Le contexte de ce projet est caractérisé par plusieurs éléments :

1. Le projet a été arrêté et repartit à plusieurs reprises attribuables à des circonstances externes. Le projet initial a été lancé en 2005. Sous sa forme actuelle, le projet a été lancé en 2012.
2. Le code du bâtiment californien strict notamment en matière de performance sismique des bâtiments;
3. La réglementation municipale (ville de San Francisco) stricte en matière de développement urbain et l'intervention constante de la municipalité dans la prise de décisions au niveau de la conception du campus Van Ness et Geary;
4. Le processus de revue et d'approbation de l'Office of Statewide Health Planning and Development (OSHPD), une agence gouvernementale responsable de la surveillance du système de santé californien;
5. L'escalade des coûts de main-d'œuvre et de matériaux prononcés dans la région de San Francisco.
6. Le haut taux de syndicalisation de la main d'œuvre en Californie.

Le bureau de projet du Campus Van Ness et Geary (Figure 5) rassemble au-delà de 300 membres de l'équipe projet qui sont directement impliqués dans le projet au quotidien. Le bureau est organisé par secteur qui rassemble les concepteurs par discipline (architectes et ingénieurs - Figure 4) d'un côté et les entrepreneurs de l'autre (Figure 3). Les équipes sont sous-divisées selon la portée de leur travail.



Figure 5 - Entrée au bureau de projet



Figure 4 - Bureau de projet - secteur des concepteurs

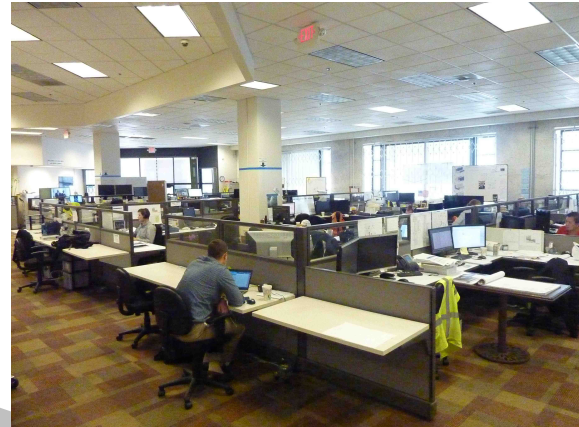


Figure 3 - Bureau de projet - secteur des entrepreneurs

Le bureau compte plusieurs espaces de travail commun et de salles de rencontres tous munis d'écrans tactiles et de projecteurs. Plusieurs espaces ont été désignés afin d'afficher les informations relatives au projet, telles que la planification des tâches (Figure 6) et les mesures de performances (Figure 7), ainsi que pour éduquer les membres de l'équipe (Figure 9) et communiquer les valeurs et objectifs (Figure 9) du projet.



Figure 6 - Espace désigné pour la planification des tâches de conception

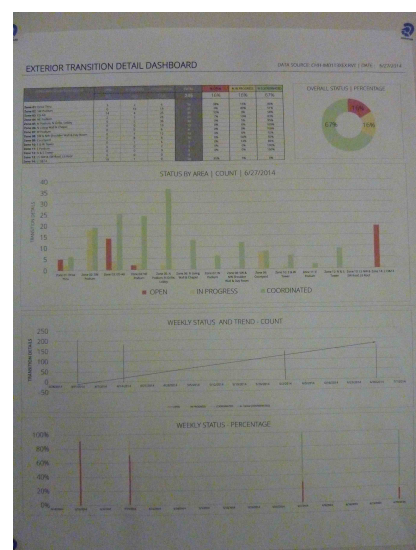


Figure 7 - Mesure de performance - production de détails de construction



Figure 9 - Affichage éducatif sur les 8 sources de gaspillages identifiées dans le concept 'Lean'



Figure 9 - Objectifs financiers affichés au dessus de l'entrée au "Big Room"

L'environnement dans lequel évolue l'équipe est configuré de manière à favoriser les échanges et la collaboration entre les membres de l'équipe de projet. Cependant, le bureau de projet ne forme qu'une partie de l'environnement qui se veut collaboratif dans le cadre du projet du CMPC. Afin de créer un environnement optimal pour livrer le projet du CMPC, en particulier celui du Campus Van Ness et Geary, plusieurs pratiques et approches novatrices ont été mises en place. Celles-ci sont présentées dans la section suivante.

3.2 PROCESSUS

La dimension des processus inclut tous les flux de travail nécessaires à la réalisation du projet. Traditionnellement, ces flux de travail sont exprimés dans un échéancier de type « Gantt » dans la méthode du Chemin Critique (*Critical Path Method (CPM)*). Dans le CPM, le projet complet est souvent décomposé à un niveau de détail qui ne permet pas un suivi rigoureux des activités inscrites. Dans le cas contraire, où le niveau de détail est élevé, la représentation graphique devient lourde et il devient donc impossible de gérer le projet au niveau de l'activité. Dans le cas du projet CPMC, une approche alternative a été employée, soit celle du Lean Construction et du Système Last Planner, développé ci-dessous. En chantier, les méthodes traditionnelles de planification du travail ne tiennent pas compte des contraintes d'espace et les ressources sont gérées séparément par les sous-traitants. Ceci réduit de beaucoup l'efficacité en chantier. Afin de contrer ceci, l'équipe du CPMC a mis en place l'approche de planification Takt, également expliquée ci-dessous.

3.2.1 LA CONSTRUCTION LEAN

L'adoption d'une philosophie *Lean* par le client est à la base de la transition vers les approches novatrices à la réalisation de projet entrepris dans les projets immobiliers du client depuis 2004. La philosophie Lean se veut une approche à la gestion de la production qui provient du monde de l'automobile. L'origine de l'approche « Lean » se trouve dans les méthodes de production développées dans l'industrie automobile par Toyota depuis les années 50. Le succès du Toyota Production System (TPS) a provoqué un changement de paradigme : la production de masse a fait place à la production « au plus juste » (Lean production). Par la suite, la réduction du gaspillage est devenue un objectif de la gestion de la production et la productivité de plusieurs

industries a été améliorée. La philosophie Lean a été adaptée à la construction en 1990 par les chercheurs de l'Université Berkeley. Comme mentionné, c'est en 2002 que Sutter Health s'est associé avec l'Université Berkeley afin de faire la transition vers le Lean Construction sur leurs projets immobiliers.

3.2.2 LE LAST PLANNER SYSTEM

Le système Last Planner est articulé autour de trois concepts clés : le flux de la valeur, les tâches devant être accomplies afin de générer cette valeur et les contraintes qui affectent ces tâches. Afin de déterminer le flux de valeur du projet et de dresser la liste de tâches à accomplir, l'équipe procède par étape, toujours en commençant par la fin du projet :

1. Une première ébauche de l'échéancier est dressée par l'équipe de projet selon la date de réalisation du projet établie par le client
2. À partir de cet échéancier, l'équipe travaille à rebours afin de déterminer les jalons importants.
3. Ces jalons sont transformés en tâches et en sous-tâches, le principe reste le même : l'équipe de projet commence toujours par déterminer le dernier moment responsable pour prendre une décision (*last responsible time to make a decision*). Ce moment dicte quelles tâches doivent être accomplies, dans quel ordre et à quel moment dans le projet.
4. L'équipe de projet procède ainsi pour chaque élément dans le bâtiment.
5. L'équipe élabore continuellement l'échéancier au fur et à mesure que le projet progresse, ceci se fait lors des rencontres hebdomadaires et journalières.

Dans le cas du projet de CPMC, lors de la visite, l'équipe de projet avait identifié plus de 3 400 tâches. La Figure 10 est une capture d'écran ainsi qu'un agrandit du détail de toutes les tâches du projet CPMC en date de la visite. Le système Last Planner est fondé sur la notion d'engagements (commitments). Chaque tâche est reliée et dépend d'une discipline en particulier (voir d'un individu). Cette relation donne lieu à des engagements de la part des membres de l'équipe de projet qui doivent accomplir leurs tâches afin que les personnes dépendant de cette tâche en aval puissent accomplir leur engagement. Si la tâche en amont est accomplie, l'engagement est tenu et l'équipe peut procéder. Si elle ne l'est pas, l'équipe cherche à savoir pourquoi la tâche n'a pas été accomplie (l'engagement n'a pas été tenu) et tente de

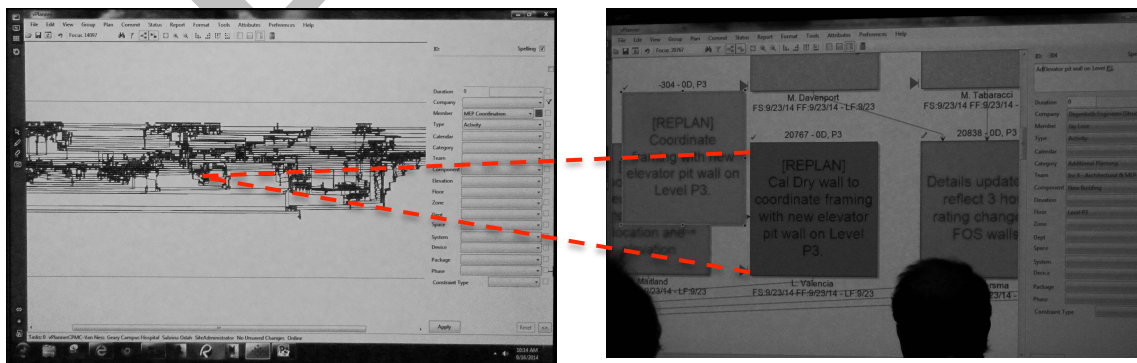


Figure 10 - La Cartographie complète des tâches dans le logiciel vPlanner

résoudre le problème en replanifiant la tâche afin de minimiser les perturbations. Ainsi la notion de client émerge, où la discipline qui est dépendante d'une tâche en amont devient le « client » de la discipline à qui appartient cette tâche.

3.2.3 LES MESURES DE PERFORMANCES ET LE POURCENTAGE PLANIFIÉ COMPLÉTÉ (PLANNED PERCENT COMPLETE (PPC));

Faisant partie intégrale du système Last Planner, la cartographie de la valeur, l'établissement des tâches précises et l'utilisation du logiciel vPlanner, offrent la possibilité de mesurer la performance de l'équipe en direct. La mesure de performance, nommée le PPC où le Pourcentage Planifié Complété (*Planned Percentage Complete*) mesure le nombre de tâches planifiées qui ont été accomplies dans un cycle donné. Cette mesure indique donc si l'équipe de projet respecte les engagements qu'elle fait et les objectifs qu'elle se donne et permet d'apporter des mesures correctives quasi immédiates.

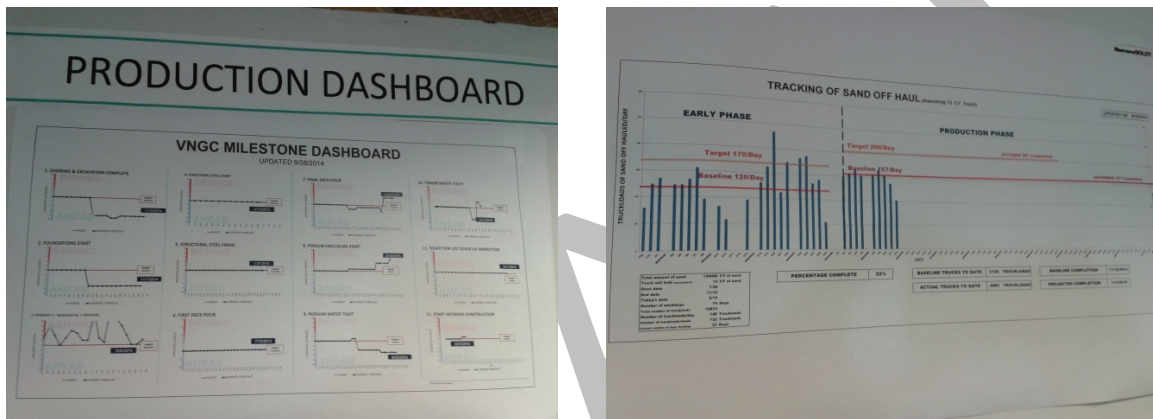


Figure 11 - Mesures de performance affichées

3.2.4 LES RENCONTRES JOURNALIÈRES DE VÉRIFICATION (CHECK IN MEETINGS)

La réunion de vérification journalière s'articule autour de la validation du travail accompli, des tâches à venir et des contraintes qui influence l'accomplissement de ces tâches. Elle se tient dans un endroit central dans le bureau de projet (voir Figure 6). Chaque discipline nomme un représentant qui est au fait des actions de son équipe. En arrivant sur place, le représentant prend un numéro; ceci récompense ceux qui arrivent tôt à la réunion, ils possèdent un numéro plus bas. Chaque représentant répond à 4 questions :

1. Qu'avez-vous accompli depuis la dernière réunion? Est-ce votre client est d'accord que le travail a été accompli?
What have you completed since last check in? Does your customer agree that it is complete
2. Qu'est-ce qui doit être accompli avant la prochaine réunion de validation?
What is to be accomplished prior to next check in?
3. Quelles sont les contraintes? Avez-vous besoin de l'aide de quelqu'un?
Any constraints? Who's help do you need?
4. Êtes-vous à jour? Qui pourrait être affecté si vous ne l'êtes pas?
Are you on track? If not, who might be affected when you re-plan?

Dans le cas qu'une des tâches n'est pas accomplie dans les délais prescrits et que cela pose un problème (cette tâche contraignait la tâche d'une autre équipe), l'équipe note que la tâche doit être replanifiée et l'indique dans le « stationnement » (Parking Lot - **Error! Reference source not found.**) pour les tâches et autres points qui doivent être discutés en dehors de la réunion en cours. Ceci assure que la réunion ne se fait pas dérouter par des discussions n'impliquant qu'un petit nombre d'intervenants.

Completed/Replanned	Date Identified / Date Needed	Who Needs it?	What Do You Need?	Who's Gonna Do It?
✓	9/8	INTEGRATED ENGINEERING TEAM	ENGINEERING & MODELING OF SUPPORTS TO RELEASE 2ND PASS MODEL COORDINATION (BATHROOM PARTITIONS & OVERHEAD DOORS)	FRED D. STEVE K.
✓	9/8		DEFINE CONTROL REQUIREMENTS IN O2 ROOM	JAKE M. EDDIE R.
✓	9/8	INTEGRATED ENGINEERING TEAM	#11642	KONG X.
✓	9/8	INTEGRATED ENGINEERING TEAM	#9408 - REPLAN ELEC. REVIEW OF ISAT DETAILS	DOUG N. DAVE M.
□	9/8	FRED D. INTEGRATED ENGINEERING TEAM	#7289 - NEEDS TO COMPLETE MODEL (FOS) REPLAN	FRED D.
✓	9/8	INTEGRATED ENGINEERING TEAM	#6147, #6650, #7297 - CONFIRM OLD TASKS CAN BE DELETED.	FRED D.
✓	9/8	INTEGRATED ENGINEERING TEAM	#411 - REPLAN AT DETAILS	FRED D.

Figure 12 - Le "Stationnement" pour les points et tâches à être discutés en dehors de la réunion en cours

3.2.5 LE TAKT PLANNING

Le *Takt planning* est une approche à la planification de séquences de construction basée sur la localisation des corps de métier. Étant très tôt dans la phase de construction du projet, la délégation SQI/CHU/ÉTS n'a pu observer une séance de Takt planning, par contre l'approche a été discutée avec l'équipe de projet. Le principe de base de la planification Takt s'apparente à la métaphore du train, possédant une locomotive et plusieurs wagons (Figure 13). Chaque wagon représente un corps de métier, la séquence de wagons représentant la séquence dans laquelle les travaux doivent être exécutés à l'intérieur d'une durée prédéterminée (habituellement de 2 jours jusqu'à une semaine). Si un wagon va plus vite ou plus lentement que le reste du train, il y aura des conséquences néfastes. Les wagons ne représentent pas seulement le corps de métier, mais également le nombre d'ouvriers. Ainsi afin de déterminer la composition du train – la séquence des travaux – le bâtiment est divisé en zones clairement définies. L'idée est de créer des zones dont le temps d'exécution de chaque corps de métier est équivalent pour un nombre d'ouvriers prédéterminé. Par exemple, une zone peut avoir

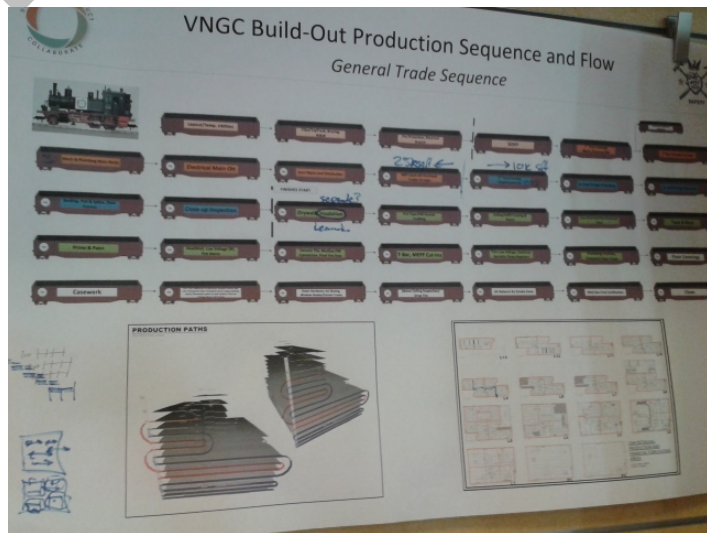


Figure 13 - Séquence des corps de métier

besoin de 2 charpentiers-menuisiers afin d'être terminée en 2 jours. La même zone peut avoir besoin d'un plombier et d'un électricien, de quatre personnes pour le gypse et de deux personnes pour la finition. Le « train » est défini ainsi pour cette zone. La même séquence est définie pour l'ensemble du bâtiment. L'avantage du takt planning, tout comme le système Last Planner, est la possibilité de mesurer la performance en direct et d'apporter des correctifs (augmenter ou réduire le nombre d'effectifs, etc.)

3.3 ORGANISATION

La dimension organisationnelle regroupe la mise en place de l'équipe de projet, des rôles et responsabilités, de même que l'organisation du travail dans le projet. Dans les modes traditionnels de livraison de projet, cette organisation de l'équipe de projet et du travail est très fragmentée et limite les interactions et la collaboration entre les parties prenantes du projet. Ceci impose de sérieuses contraintes sur le déroulement du projet et contribue énormément à la réalisation de projet déficiente et sous-optimale. Afin de contrer ceci, le client a cherché à intégrer toutes les parties prenantes du projet au moyen de la réalisation de projet intégrée sous la bannière d'un formulaire d'entente intégrée, développé ci-dessous.

3.3.1 LA RÉALISATION DE PROJET INTÉGRÉE (IPD)

La Réalisation de Projet Intégrée (RPI – *Integrated Project Delivery (IPD)*) agit à titre de facilitateur et complément pour l'implantation du Lean Construction et du BIM dans le projet du CPMC, et à plus grande échelle pour tous les projets de Sutter Health. La RPI est implantée au moyen d'un montage contractuel entre les parties prenantes du projet où il y a un partage équitable et explicite des risques et des gains. L'objectif est de créer un environnement de projet sain, où l'optimisation des gains pécuniaires personnels n'est plus un facteur déterminant dans les agissements des différentes parties prenantes. À la place, il s'agit de l'optimisation globale du projet qui est prônée, d'où le partage équitable des risques et des gains parmi les parties prenantes.

3.3.2 LE INTEGRATED FORM OF AGREEMENT (IFOA)

Le IFOA est un accord unique entre plusieurs parties prenantes d'un projet de construction : les clients, les architectes et ingénieurs (concepteurs), l'entrepreneur général et l'entrepreneur spécialisés. Dans ce contrat, les concepteurs et les entrepreneurs sont invités à offrir des solutions créatives et innovantes pour optimiser la qualité afin de répondre aux besoins du client.² Toute l'équipe est engagée à respecter le budget; les participants doivent être transparents, créatifs et collaboratifs.

Dans le cadre de la dernière itération du projet CPMC, le contrat totalisait 36 pages (excluant les annexes, appelées *exhibits*). Par contre, ceci n'était pas toujours le cas. Entre autres dans le cas du projet Castro Valley (étude de cas en annexe) et la première itération du CPMC, le IFOA comportait une centaine de pages et rentrait dans beaucoup de détail quant aux moyens et

² <http://www.leanleadership.ca/Briefing%20information%20document.pdf>

méthodes et à l'allocation des ressources. Ces premiers contrats IFOA entraînaient des discussions de plusieurs mois, voire jusqu'à un an dans le cas de Castro Valley, avant d'avoir l'accord de toutes les parties prenantes. Ceci est dû tant au contenu du contrat qu'au fait d'avoir 11 parties prenantes qui devaient signer le contrat. Ainsi la dernière itération du projet CPMC, et son contrat IFOA de 36 pages, est le résultat de l'expérience acquise et fait preuve de beaucoup de maturité de la part du client. Malgré le nombre réduit de pages, il a fallu quand même plusieurs mois avant de signer l'entente entre les trois composantes du IFOA, le client, l'entrepreneur et l'architecte (Figure 14).

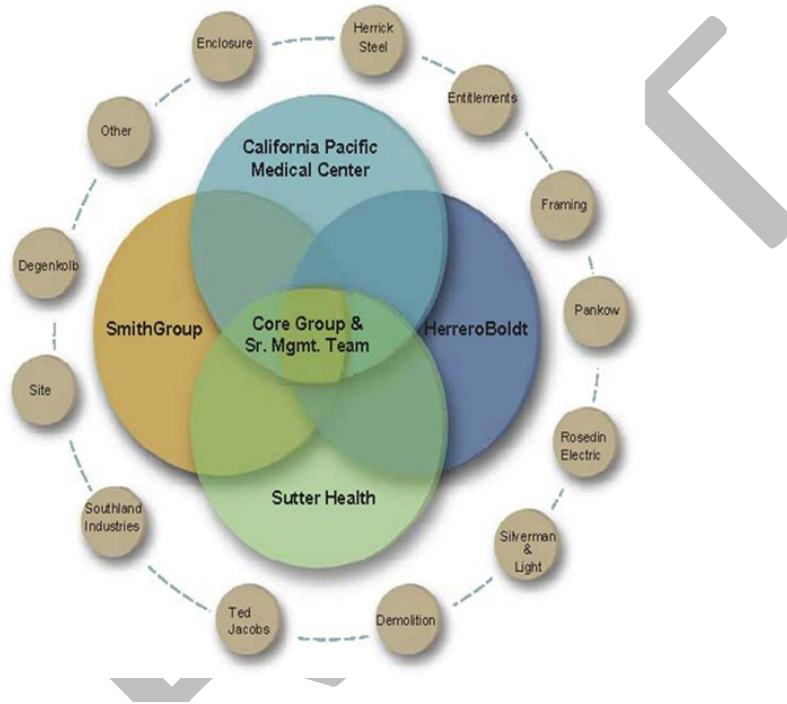


Figure 14 - La Structure contractuelle de l'équipe de projet

En guise d'exemple canadien, le projet de l'hôpital de Moose Jaw en Saskatchewan est le premier projet canadien à avoir mis en place un contrat IFOA. L'étude de cas de ce projet se trouve en annexe 3. Il s'agit d'un projet public dans le contexte canadien. Boldt, l'entrepreneur mandaté sur le projet CPMC, agissait à titre d'intégrateur BIM et Lean pour ce projet. Le contrat IFOA se trouve en annexe 4.

3.3.3 LE TARGET VALUE DESIGN ET LE TARGET COSTING;

Malheureusement, la délégation SQI/CHU/ÉTS n'a pu observer d'exercice de Target Value Design (TVD) ni de Target Costing (TC) lors de la visite. Par contre, cet exercice a souvent été indiqué comme étant clé dans le projet et se fait constamment. Le TVD est une méthode où les composantes du projet sont décomposées en un ensemble de prix détaillé (estimé) qui est la valeur analysée avec le progrès de la conception. L'emploi de cette méthode a permis de favoriser l'approche collaborative où les avis de toutes les parties sont d'un poids égal. Une fois les parties se sont mises d'accord, les innovations et les idées sont reflétées dans les dessins, et

puis partagées avec l'équipe. La conception est surveillée en permanence pour éviter qu'elle dépasse l'estimation initiale ciblée. Dans le cadre du projet CPMC, le budget est mis à jour toutes les 2 semaines au moyen d'intégration directe avec la maquette BIM.

Le TC est la résultante de trois itérations d'estimation des coûts de projets : la première itération est faite par le client selon ses besoins et son plan d'affaires. Le coût qui est produit à cette étape est l'« Allowable cost », soit le budget maximal dont dispose le client pour ce projet. L'équipe de projet fournit ensuite un coût à partir du programme qui est le « expected cost », soit le coût attendu du projet. Le client et l'équipe de projet se rassemblent ensuite pour établir le « target cost », soit le coût ciblé pour le projet. Tout au long de la phase conception et construction, l'équipe de projet travaille vers la réalisation du projet à l'intérieur de ce « target cost ». Le dépassement ou le respect des coûts fera partie du programme de « pain share/gain share »

3.3.4 PAIN SHARE /GAIN SHARE

Le pain share/gain share est l'un des principes de base de la RPI. Il s'agit de distribuer le risque et les récompenses de manière équitable parmi toutes les parties prenantes. L'idée est de sensibiliser l'équipe aux impacts qu'ont leurs décisions sur l'ensemble du projet. Ainsi, une décision qui peut faire économiser de l'argent pour un pourrait en coûter le double pour l'autre. En mettant en commun les profits réalisables, la décision d'y aller avec la solution qui offre une optimisation locale (qui pourrait faire économiser de l'argent pour l'un, mais en coûter plus pour l'autre) est mise de côté pour la solution qui offre une optimisation globale. Le but est d'optimiser le tout au lieu de l'élément, le pain share/gain share est une stratégie qui facilite cela.

3.3.5 L'INTÉGRATION DE L'ÉQUIPE DE PROJET AU SEIN D'UN BIG ROOM;

La salle de rencontre « Big Room » est considérée comme le cœur et le cerveau de l'opération. Il s'agit d'une salle de rencontre pouvant accueillir une soixantaine de personnes. De fait, les objectifs financiers sont affichés clairement à l'entrée de cette salle pour que tous puissent les voir (Figure 9). La salle compte deux écrans tactiles (de type *Smart Board*) sur lesquels sont projetés les maquettes, les documents et les présentations en cours de discussion. L'équipe se regroupe toutes les semaines dans le Big Room dans le cadre d'un atelier de rencontre (*Workshop Meeting*). Cet atelier de rencontre regroupe un ou plusieurs représentants de toutes les parties prenantes du projet afin de planifier et produire en collaboration ses différentes étapes et éléments. Ainsi, chacun des aspects du projet est planifié et résolu par en groupe et un consensus est recherché. L'ensemble du processus est dirigé par l'équipe "noyau"³.

Lors de ces ateliers de rencontre, un ordre du jour est clairement établi et affiché en gros format à l'entrée de la salle. Le déroulement de l'atelier est inscrit (voir annexe 2) de même que les personnes qui doivent assister au moment indiqué. Outre l'ordre du jour et le personnel exigé identifié, la porte de la salle de réunion demeure ouverte pendant toute la journée. Ainsi, un va-

³³ http://www.graham.ca/_pdf/G12-96_fall_Newsletter_FINAL.pdf

et-vient constant a été remarqué et l'équipe sollicite les gens concernés qui ne sont pas nécessairement dans la salle de réunion lorsqu'ils en ont besoin. L'atelier est animé par une série d'animateurs provenant de disciplines différentes selon l'item discuté. Ces animateurs sont choisis pour leurs compétences, mais également pour leur leadership et leurs capacités en tant que communicateurs.

Dans le cadre de l'atelier de rencontres observées, les éléments suivants ont été remarqués :

- La rencontre début avec un exercice de renforcement positif, ainsi un dénombrement des petites victoires (small wins) accomplies depuis la dernière rencontre est effectué. Ces petites victoires servent de mesure de performance pour le projet.
- Des présentations sont également faites à toute l'équipe de projet afin de présenter des segments de travail qui a été effectué et qui ont un impact positif sur le projet. Lors de la visite, la présentation portait sur la « mock-up » de l'armature d'acier dans les fondations. Ainsi, l'équipe qui était impliquée dans cette portée de travail a fait la présentation des processus et des tâches effectuées, de bénéfices que ce « mock-up » a apportés et de l'impact sur le projet. Dans ce cas, l'exercice a permis de développer une vingtaine « d'innovations » et de faire économiser 3 semaines à l'échéancier.
- Après les items d'ordre plus général, l'atelier rentre dans les éléments de détail, ainsi la planification des tâches, les engagements de la semaine dernière et le respect de ces engagements est fait selon le système Last Planner, dans le logiciel vPlanner. Tous les intervenants y participent et une discussion active porte sur chaque tâche. Ainsi, une période de temps importante (3 h 30 min dans le cas de l'atelier observé) est passée sur la planification du projet
- L'atelier sert également à la revue de la conception et de détails constructifs du projet. Ainsi, une portion importante de l'atelier portait sur la revue de la progression de la conception, notamment au bénéfice des sous-traitants, et la revue de la maquette BIM au moyen de Navisworks. Le processus de revue dans Navisworks est approfondi dans la prochaine section.



Figure 16 - le "Big Room"

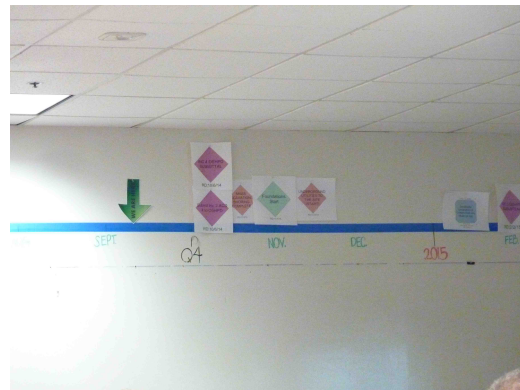


Figure 16 - L'échéancier et les jalons de projet affichés dans la salle

3.4 TECHNOLOGIE

La technologie apporte bien des avantages dans le cadre de la conception et de la construction de projets de construction. Par contre, les approches technologiques doivent être accompagnées de changement procédural et organisationnel. Ceci est d'autant plus vrai dans le cadre du déploiement du Building Information Modeling (BIM). Sans ces changements organisationnels, le déploiement technologique risque fort bien de s'avérer contre-productif et causer plus d'ennuis qu'il en règle. Dans le meilleur des cas, les bénéfices seront très limités. Dans le cadre du projet CPMC, le client a implanté le BIM en guise de appui à l'approche Lean. Ceci est approfondi dans la section suivante.

3.4.1 LE BUILDING INFORMATION MODELING (BIM)

La troisième approche novatrice à la réalisation de projet qui a été observé et discuté est l'implantation du IBM dans le projet du CPMC. Le BIM représente à la fois une technologie, un produit ainsi qu'un processus. Ainsi, le BIM se caractérise des trois manières suivantes :

1. le **modèle** d'information du bâtiment (*Building Information Model*) :
« une représentation numérique des caractéristiques physiques et fonctionnelles d'un bâtiment. Ainsi, il sert de ressource pour le partage de données concernant un bâtiment, formant ainsi une base fiable pour la prise de décisions pendant sa durée de vie, et ce, dès sa création. » (NIBS 2007) [TRADUCTION LIBRE]⁴
2. la **modélisation** de l'information du bâtiment (*Building Information Modeling*) :
« une nouvelle approche de conception, de construction et de gestion d'un bâtiment. Le BIM n'est pas un objet ou un type de logiciel, mais plutôt une activité humaine qui comporte en définitive de vastes transformations de processus dans le domaine de la construction. » (BIM Handbook Eastman et. al., 2008) [TRADUCTION LIBRE]

« un processus axé sur le développement, l'utilisation et le transfert d'une maquette de données numériques d'un projet de construction afin d'améliorer la conception, la construction et l'exploitation d'un projet ou d'un portefeuille de bâtiments. » (PSU Computer Integrated Construction Program 2010) [TRADUCTION LIBRE]⁵
3. la **gestion** de l'information du bâtiment (*Building Information Management*) :
« le contrôle et l'organisation du processus de modélisation en utilisant l'information contenue dans la maquette pour des fins de partage et d'échange d'information tout au long du cycle de vie du produit. » (Ex Con Draft V8, 2012) [TRADUCTION LIBRE]

L'élément clé qui a été discuté lors de la visite s'articule autour du moyen par lequel le client a établi ses exigences pour le BIM et du respect de ces exigences par l'équipe de projet. Malgré le

⁴ the digital representation of physical and functional characteristics of a facility. As such it serves as a shared knowledge resource for information about a facility, forming a reliable basis for decisions during its life-cycle from inception onwards.

⁵ the organization and control of the business process by utilizing the information in the digital prototype to effect the sharing of information over the entire lifecycle of an asset.

<http://www.buildingsmart.org/organization/OPEN%20BIM%20ExCom%20Agreed%20Description%2020120131.pdf>

fait qu'il n'a pas été possible d'obtenir le document contractuel et de voir les exigences mises de l'avant, il a été compris que le BIM a été requis contractuellement pour le projet. Deux principes, découlant du requis contractuel, ont guidé l'implantation du BIM : premièrement, la maquette est le document contractuel régissant la réalisation du projet (et non les livrables 2D). Deuxièmement, la maquette sera livrée à un niveau de détail qui permet la fabrication à partir de la maquette, appelé *Design for fabrication*. Les personnes rencontrées ont toutes été catégoriques : l'équipe de projet modéliserait tout le bâtiment, sans exception. Plusieurs personnes ont mentionné que selon leurs expériences passées, les erreurs en chantier se retrouvaient lorsqu'un certain élément ou système (par exemple, l'armature d'acier) n'était pas modélisé. Ainsi, pour le projet du CPMC, le principe du *design for fabrication* réside dans la création d'une maquette multidisciplinaire complète, où toutes les composantes du bâtiment sont modélisées, à un niveau de détail très précis (au mm près). Ceci permet d'extraire les dessins d'atelier et d'exécution directement de la maquette. La mise en place et le respect de ces exigences ne sont tenus possibles que dans un environnement intégré dû aux flux de travail et d'information qui sont requis pour mener à terme un tel exercice. En effet, le processus de modélisation est subdivisé par portée de travail et par système, au lieu d'être subdivisé par discipline uniquement. Ainsi, les systèmes sont conçus par les professionnels, qui les développent à un niveau de détail adéquat pour la représentation et la visualisation. Ces équipes de professionnels travaillent de concert avec les entrepreneurs spécialisés qui sont responsables de la mise en œuvre du système. Ces entrepreneurs spécialisés prennent les modèles développés pour communiquer l'intention à un niveau de détail qui permet la fabrication. Cette implication directe entre professionnels et entrepreneurs au moyen du BIM est bénéfique à plusieurs niveaux, notamment pour la validation de la constructibilité du système et de son optimisation. Il est également important de noter que le respect de la maquette lors de la construction est primordial. Ainsi, chaque élément est fabriqué et installé tel que modélisé. Le suivi et le contrôle qualité en chantier sont assurés au moyen de balayage laser qui est effectué après les quarts de travail. Ceci implique donc qu'il y aura un minimum de changements à apporter à la maquette lors de la construction.

Lors de la visite, l'observation du BIM en pratique s'est limitée à la réunion de revue de la conception (*design review*) qui se tient toutes les deux semaines dans le cadre de la réunion du *Big Room*. À l'instar de la détection des interférences, qui est une des applications populaires du BIM, la revue de la conception dans la maquette a pour objectif de revoir les endroits dans le bâtiment où il y a des erreurs ou des omissions de modélisation ou de conception qui pourraient être problématiques si elles ne sont pas résolues et qui ne sont pas repérées automatiquement lors de la détection des interférences. Cette réunion est menée par le représentant de la firme mandatée pour assurer l'intégration BIM et Lean dans le projet, Ghafari. Au cours des deux semaines entre les réunions, cette personne, l'intégrateur BIM, compile les endroits où ces erreurs ou omissions ont été soulevées par l'équipe de projet (un pont direct existe entre cette personne et les concepteurs et modélisateurs de l'équipe de projet). L'intégrateur BIM crée une vue spécifique pour chaque instance et crée une tâche dans le logiciel vPlanner. Cette tâche a un identifiant unique et est intégrée dans l'échéancier du projet. Ainsi, il est possible de faire le

suivi de cette instance, de dénombrer les contraintes qui l'affectent et de déterminer son impact sur le déroulement du projet.

3.4.2 LE LOGICIEL DE PLANIFICATION DE TÂCHES vPLANNER;

Le logiciel de planification vPlanner a été développé par Ghafari et implanté dans le projet du CPMC par la firme. L'idée derrière le logiciel est d'automatiser le processus de cartographie des flux de valeur. Par le passé, ce processus se faisait sur des feuillets « post-it » fixés aux murs. Le suivi se faisait sur plusieurs plateformes différentes et le nombre de tâches définies devenait très nombreux (tel que mentionné, 3 400 pour le projet du CPMC!). Ceci devenait donc très difficile à gérer, voir ingérable ce qui poussa la firme Ghafari à développer le logiciel. Le logiciel devient donc une extension du système Last Planner et sert d'outil de planification pour l'équipe de projet.

4 CONSTATS

La visite du projet CPMC a permis de faire plusieurs constats par rapport à la mise en place d'environnements collaboratifs qui facilitent et optimisent la réalisation de projet :

1. Communiquer les changements à venir et informer la chaîne d'approvisionnement quant à l'impact qu'auront ces changements sur les projets futurs;
 - Une des étapes importantes de Sutter Health se trouvait dans l'effort de communication, de formation et d'éducation de sa chaîne d'approvisionnement quant aux changements à venir. Le client informait ainsi ses fournisseurs de service et leur laissait le choix d'entreprendre le changement ou de ne plus travailler pour Sutter health.
2. Une instanciation pratique de la philosophie Lean et du Lean construction :
 - Ceci s'est fait au moyen du système Last Planner et du programme informatique vPlanner qui permet la cartographie des flux de valeur et la planification des tâches en conséquence. L'équipe de projet a mis beaucoup d'effort au niveau de la formation et de l'éducation en ce qui concerne le last planner et de son apport au projet. De plus, le maintien de l'échéancier dans vPlanner est une priorité et l'équipe de référent constamment au plan de travail. Il devient la seule et unique source et la base de données est centralisée. Ainsi, tous les membres de l'équipe de projet sont au fait de l'échéancier, des tâches qui leur sont attribuées, de la durée de ces tâches, des contraintes qui les affecte (le travail qui doit être accompli en amont afin de compléter la tâche) et l'impact de la tâche sur celles en aval.
3. Un accent important sur la planification du travail, de la cartographie des processus et des flux de valeur;
 - De ce qui a été observé, l'importance accordée à la gestion des processus de réalisation de projet et à la planification du travail égalait ou surpassait celle accordée au bâtiment comme tel. Ainsi, les réunions discutaient autant du processus que de la forme que devait prendre l'élément discuté.

4. Le contrat de réalisation de projet intégrée (Le Integrated Form of Agreement – IFOA) :
 - Afin de formaliser la philosophie Lean, la signature d'une entente intégrée était primordiale. Le IFOA est l'élément qui facilita la création de l'environnement collaboratif et de la mise en place d'objectifs de projets communs qui mènera à l'optimisation globale du projet au lieu d'une optimisation locale par firme.
 - Par contre, en discussion avec Will Lichtig de la compagnie Boldt (Entrepreneur général) et anciennement le conseiller juridique qui a écrit la première entente IFOA pour Sutter Health en 2004, la création d'un environnement de réalisation de projet intégré et collaboratif ne passe pas nécessairement par la signature d'un IFOA. En effet, il a mentionné que la plupart des modes d'approvisionnement, à l'exception du mode conception-soumission-construction (design-bid-build (DBB)), peuvent être modifiés afin de les rendre plus collaboratifs. Il a mentionné deux éléments clés : (1) éliminer les motivations purement financières du projet où les firmes cherchent à maximiser leurs gains individuels et (2) s'assurer que le montage contractuel ne favorise pas une partie prenante en particulier. À cet effet, le client mentionnait qu'il s'assurait non seulement des liens contractuels directs qu'ils entretiennent avec leurs fournisseurs, mais également des liens qui unissent ces fournisseurs et leurs sous-traitants. En effet, M. Lichtig mentionnait qu'il ne s'agirait que d'un « mauvais contrat » afin de créer des tensions au sein de l'équipe de projet qui pourrait faire dérailler le projet.
5. Le Building Information Modeling (BIM) et de son utilisation dans le projet :
 - La maquette est la source autoritaire d'information du projet. Les documents 2D qui seront produits à partir de la maquette seront exacts puisque tout sera inclus et coordonné dans le modèle.
 - Les exigences contractuelles en matière de BIM étaient claires : l'équipe modéliserait tout le bâtiment, sans exception, à un niveau de détail qui permettrait la fabrication et l'installation à partir de la maquette. L'équipe de projet a donc été divisée par portée de travail et de système au lieu d'être regroupée par discipline. De plus, l'équipe de projet a mis beaucoup d'effort dans l'intégration du BIM et du système Last Planner dans le logiciel vPlanner.
 - La construction du bâtiment se fera à partir de la maquette, au moyen d'éléments préfabriqués hors site et de plans d'assemblage. Un balayage laser sera effectué à des intervalles réguliers (selon la production) afin d'assurer que tous les éléments sont installés tels que modélisés.
 - Aucun guide d'exécution BIM (BIM Project Execution Plan (PXP)) n'a été développé dans le cadre de ce projet. Selon la firme responsable de l'intégration BIM, l'utilité d'un tel guide est mitigée. En lieu du guide, l'utilisation du système last planner et de la cartographie des flux de valeur sert à dicter les utilisations du BIM et de l'évolution de la maquette. Ceci est un départ de la norme actuelle dans l'industrie qui est de créer un guide d'exécution.

6. L'intégration technologique de l'équipe de projet au moyen d'un portail de projet (Projectwise v6) :
 - L'intégration technologique de l'équipe de projet a été un point très important dans le cadre de ce projet. Ceci s'est fait au moyen d'un portail de projet, soit la plateforme Projectwise v6. L'avantage de cette plateforme est qu'elle permet l'accès à distance aux serveurs de projet et permet à l'équipe de travailler à même la maquette (BIM) fédérée. L'accès à la maquette la plus à jour est primordial dans le travail collaboratif facilité par le BIM et assure que tous les membres de l'équipe de projet travaillent sur la même version du projet.
7. La salle de rencontre « Big Room » et la réunion hebdomadaire de collaboration multidisciplinaire :
 - La présence d'un environnement physique qui encourage les interactions et les échanges entre les membres de l'équipe de projet tout en favorisant la collaboration active et un aspect crucial du projet.
 - En parallèle, le maintien d'une rencontre hebdomadaire, bien structurée et impliquant les personnes clés au bon moment est également important. De plus, l'environnement de rencontre souscrit à des règles très claires qui sont affichées dans toutes les salles de rencontre. Voir la Table 3.
8. L'importance de l'accompagnement et du leadership dans le maintien d'attitudes et de comportements collaboratifs;
 - Le leadership est souvent revenu comme critère de succès du projet. Selon l'entrepreneur, il s'agit « d'avoir les bonnes personnes aux bonnes places ».
 - L'importance accordée aux comportements et aux attitudes constructives et positives était remarquable.
 - Ceci est d'autant plus vrai dans le cadre des rencontres de projet où le leadership est essentiel afin d'orienter la discussion, de satisfaire les attentes de ces réunions, de faire la discipline et de gérer les bonnes ententes.
 - Il est primordial que ces leaders soient visibles au sein de l'équipe de projet.
9. L'encouragement d'interactions entre membres de l'équipe de projet appartenant à différentes organisations;
 - Les différentes zones de travail et de rencontres sont établies de manière à favoriser les interactions et les échanges entre les membres de l'équipe de projet. Par exemple, bien que le but principal des réunions de validation journalières soit de valider l'avancement des tâches prévues à l'échéancier de production, ces réunions permettent également à tous les membres de l'équipe de se présenter (leurs rôles et la compagnie pour laquelle ils travaillent). Ceci est vu comme une bonne manière de s'assurer que les membres de l'équipe se connaissent et soient mis au courant de quelle personne s'occupe de quelle portée du travail.
10. L'encouragement du *conflict-based dialogue*;
 - Lors des interactions entre les membres de l'équipe de projet, une tension constructive est encouragée, sous la forme de *conflict-based dialogue* qui a pour

- objective la confrontation respectueuse et la remise en question continuelle afin de ne pas tomber dans la complaisance en cours de projet.
- Ceci est d'autant plus vrai dans le cadre des ateliers de rencontre ou la résolution de conflit et de problème est le principal objectif. Ainsi, personne n'est ciblé directement, au lieu l'équipe est constamment en mode remise en question-résolution de problème
11. L'absence de structure hiérarchique lourde qui favorise l'agilité de l'équipe de projet :
- Les grades et les rangs sont quasi-absents au sein de l'équipe de projet. Tandis qu'une chaîne de commande et décisionnelle claire a été établie, il existe beaucoup d'opportunités pour les membres de l'équipe de projet de développer leur rôle en fonction de leur capacité. Un exemple est celui d'une jeune diplômée à la maîtrise qui a débuté sur le projet en 2013. Dû à son intérêt pour le logiciel vPlanner, elle est devenue la personne responsable de maintenir l'échéancier et de le manipuler lors des réunions hebdomadaires. Ainsi, l'équipe de projet cherche à mettre les bonnes personnes dans les bons rôles – ceci a été comparé à un échiquier par M. Lichtig, qui mentionnait que le rôle des gestionnaires de projet était de remplir cet échiquier avec les personnes appropriées, peu importe leur âge ou leur vocation.
12. L'engagement continu du client avec le milieu académique :
- Un des constats importants fait lors de la visite est l'importance accordée aux partenariats avec le milieu académique qui a été témoigné par le client. En effet, c'est au moyen de ces partenariats que Sutter Health a pu développer ses aptitudes et ses connaissances en matière de Lean et de BIM.
 - De plus, le projet du CMPC, de même que plusieurs autres projets de Sutter Health font l'objet d'études de cas de même que de projets de recherche où des chercheurs venant de partout dans le monde étudient les équipes de projets formés par le client. Ainsi, plusieurs étudiants à la maîtrise et au doctorat se retrouvent dans les rangs de l'équipe de projet du CMPC.
 - Pour le client ceci est avantageux puisque ça donne accès à du capital intellectuel de haut calibre pour peu d'investissement. Plusieurs de ces étudiants ont intégré l'équipe lors de leur graduation.
13. L'importance d'avoir du personnel consacré à l'implantation et au maintien des approches de planification et de suivi de la maquette :
- Tandis que chaque discipline est responsable de planifier les tâches ainsi que de développer la maquette qui leur est propre, des rôles spécifiques ont été créés au sein de l'équipe de projet afin d'assurer l'intégration du tout. En effet, la firme Ghafari a été spécialement embauchée afin d'assurer le bon déroulement et l'implantation appropriée des technologies BIM et last planner (vPlanner).
 - Le fait de dédier du personnel à la tâche d'intégration du BIM et du Lean assure que l'effort d'implantation est soutenu tout au long du projet.
14. La découverte des présuppositions (*assumptions*) faites par les diverses parties prenantes afin de réduire les redondances et les contingences appliquées au projet.

- L'environnement intégré et collaboratif mis en place dans le projet du CPMC permet à l'équipe de projet de découvrir les présuppositions (*assumptions*) faites par chaque membre de l'équipe dans la conception de leurs systèmes respectifs. Ceci permet de mettre en lumière les redondances intégrées dans la conception de ces systèmes issus du lègue des expériences antérieures et permet ainsi d'optimiser le bâtiment.
 - Un objectif également important de cette mise en lumière des suppositions faites dans le projet est de révéler les contingences appliquées par chaque discipline et corps de métier dans le projet. La pratique traditionnelle veut que les contingences soient appliquées à plusieurs niveaux (par exemple par l'entrepreneur spécialisé et par l'entrepreneur général) ce qui a pour effet de gonfler inutilement les coûts du projet et par conséquent de réduire le montant allouable à d'autres éléments du bâtiment. L'équipe de projet met énormément d'effort de réduire les contingences du projet et de ne les appliquer que de manière globale.
15. L'importance de conserver l'expertise et de maintenir les mêmes ressources tout au long du projet
- Un des éléments clés qui a été discuté est le refus quasi catégorique du client de remplacement de personnel haut placé par ses fournisseurs en cours de projet, à moins de force majeure.
 - Des clauses très claires dans les appels d'offres et dans le contrat empêchent les fournisseurs de « promettre » la présence d'une personne sur le projet et de le retirer en cours de projet. Ceci est primordial afin d'assurer la continuité du savoir et de la connaissance dans le projet. En cas de force majeure, le remplacement de personnel est un exercice sérieux et plusieurs alternatives sont explorées avec le fournisseur en question. Le client garde le contrôle sur le personnel qui sera impliqué dans le projet.

Table 3 - Directives informelles pour les réunions

Start right, start on time!	Débuter de la bonne manière, débiter à temps!
State the desired outcome of the meeting.	Clarifiez les résultats attendus de la réunion
Ask : Are the right people in the meeting?	Demandez : Est-ce que les bonnes personnes sont dans cette réunion?
Set aside a Parking Lot Area	Établissez une « zone de stationnement » pour les sujets hors discussion (un endroit où les sujets qui ne sont pas directement pertinents à la réunion en cours sont inscrits et discutés ultérieurement)
This is a safe zone!	Ceci est une zone sécuritaire (sans jugement)!
No rank in the room.	Aucun grade dans la salle.
Help us stay on track.	Aidez-nous à respecter l'échéancier.
One speaker at a time	Un intervenant à la fois.
Everyone participates, no one dominates	Tout le monde participe, personne ne domine.
Give freely of your experiences	Partagez librement de vos expériences.
Encourage diverse points of view	Encouragez les perspectives diverses.
Keep an open mind.	Gardez un esprit ouvert.
Bring out the best in everyone.	Faites ressortir le mieux dans chacun.
Encourage having fun!	Ayez du plaisir et encouragez les autres à en avoir!
Be an active listener.	Faites de l'écoute active.
Listen as an ally.	Écoutez en tant qu'allié.
Respect the presenter, lower your screens.	Respectez ceux qui présentent, fermez vos écrans et vos portables.
All phone calls should be taken outside.	Tous les appels téléphoniques devraient être pris à l'extérieur de la salle.
Anything you write on the board is spelled correctly.	Tout ce que vous écrivez au tableau est bien écrit.
Racap at end of break-out meeting, Identify/ follow-up	Récapitulez à la fin des sessions. Identifiez les tâches et faites le suivi.
The last 15 minutesL Reflect « did we meet our desired outcome? »	Les 15 dernières minutes, réfléchissez : « Avons nous atteint les objectifs de la réunion et avons-nous obtenu les résultats désirés? »
Leave the room as you would prefer it.	Laissez la salle dans l'état que vous préféreriez l'avoir.
End on time... or ahead of schedule.	Finissez à temps... ou en avance.

5 CONCLUSION

La visite du bureau de projet du CPMC a permis à la délégation SQI/CHU/ÉTS d'observer quelques-unes des meilleures pratiques en matière de planification et de réalisation de projets de construction. L'implantation de pratiques novatrices, telles que le BIM, le Lean et la RPI, par le client et l'équipe de projet a été faite de manière cohérente et soutenue avec des objectifs clairs et bien établis dès le début du projet. Bien que la délégation n'a pu observer qu'un instant dans le cycle de vie du projet, les discussions et les observations faites laissent entrevoir une approche bien différente des modes de réalisation traditionnels. Outre les technologies et les pratiques novatrices, ce qui a été le plus remarquable est sans doute l'ambiance dans le bureau de projet et les attitudes ouvertes et positives des membres rencontrés et observés. Comme dans tout projet, certaines tensions ont été senties (notamment lors de la réunion de planification, où il y a eu une intervention forte de la part d'un des responsables de l'échéancier) cependant, il s'agit d'une pratique qui est encouragée, ce que Will Lichtig appelle le « conflict-based dialog », tel que mentionné dans les constats.

Dans le cadre du projet du CHU de Québec et dans le contexte plus large de la SQI, ce sera un défi de taille d'implanter les approches discutées; le développement de l'environnement présenté dans ce rapport étant le résultat de 10 ans d'évolution initiés par Sutter Health. Par contre, ce défi est loin d'être impossible à réaliser. Le projet du CHUQ représente une opportunité unique d'intégrer les pratiques observées ou discutées dans le cadre du projet CPMC. Ainsi, la SQI et l'équipe de projet du CHU peuvent mettre en place ces approches et ces pratiques observées afin, entre autres, d'améliorer la prédictibilité des coûts et des échéanciers, de réduire de façon substantielle les coûts de projet et d'opérations (certaines études ont démontré jusqu'à 30 % d'économie de coût) et de maximiser la génération de valeur par une optimisation des besoins et des solutions produites. En effet, ce projet pourrait devenir un exemple de meilleures pratiques de classe mondiale et pourrait agir en tant que catalyseur pour l'industrie québécoise de la construction. Plusieurs options s'offrent à la SQI afin de mettre en place ces approches et pratiques novatrices, telles que celles déployées dans le cadre de projets publics canadiens, notamment l'hôpital de Moose Jaw en Saskatchewan et le Campus de St Jérôme de l'Université de Waterloo. Cependant, il doit y avoir une volonté forte de la part du gouvernement et des dirigeants du projet du CHU ainsi qu'une gouvernance importante afin d'aller de l'avant et d'assurer le bon déploiement des approches présentées dans ce rapport.

6 RÉFÉRENCES

DRAFT

ANNEXES

ANNEXE 1 - HORAIRE DE LA VISITE

Monday September 15

8 h 45 - 9 h Introduction and objectives of the mission (ÉTS)

9 h – 10h00 Presentation of the CHUQ mega-hospital project (SQI)

10 h – 11 h Presentation part 1 : managing the changes rethinking the delivery of hospital projects at Sutter Health (Sutter Health)

11 h – 12 h Observation : Check-in meeting

12 h – 13 h 00 Lunch

13 h – 14 h 00 Part 2 managing the changes rethinking the delivery of hospital projects at Sutter Health (Dan)

14 h – 16 h 30 Roundtable with stakeholders of Cathedral Hill project

Tuesday September 16

8 h 00 - 8 h 15 Welcome

8 h 15 - 8 h 30 Rebar Mock-up

8 h 30 - 8 h 40 Small Wins

8 h 40 - 8 h 50 Tunnel Schedule and Protocol for Communications

8 h 50 - 9 h 00 OSPD Submission Review

9 h 00 - 9 h 35 Commitments in vPlanner

9 h 35 - 11 h 35 vPlanner : Re-planning / Additional Planning/Look Ahead

11 h 35 – 11 h 55 Design & Floor Plan Update

11 h 55 – 12 h 40 Lunch

12 h 30 - 14 h 40 Navisworks Resolving Issues within Model

14 h 40 – 15 h 40 Increment 2 to 6 vPlanner Status and Commitments

15 h 40 – 15 h 55 Develop next week's agenda

Wednesday September 17

9 h – 12 h 00 Integrated project delivery: principles and lessons learned (Boldt)

DESCRIPTION DU PROJET

- **Type de projet** : institutionnel (hôpital)
- **Coût** : 320 M\$
- **Superficie** : +/- 230 000 pi.ca, 130 lits
- **Mode de réalisation** : RPI (IPD) (contrat IFOA)
- **Approches** : BIM et Lean
- **Client** : Sutter Health
- **Calendrier**
 - Conception : début septembre 2007 (durée 15.5 mois)
 - Construction : 1er juillet 2009 à décembre 2012
 - Occupation : 1er Janvier 2013

Cette étude de cas présente le projet du Sutter Health Medical Center à Castro Valley en Californie. Il s'agit d'un projet phare en matière de l'utilisation du BIM collaboratif, de la réalisation de projet intégrée et des approches Lean. Ce projet compte le remplacement d'un hôpital existant, le *Eden Medical Center*, dû aux exigences en matière de renforcement sismique très strictes pour les centres de soins primaire, passé comme loi en 1994. En fonction de cette loi, l'hôpital existant, bâti en 1954, ne serait plus admissible pour une licence à partir du 1er janvier 2013. Cette nouvelle loi affectait plusieurs des bâtiments de Sutter Health, ainsi l'organisme à but non lucratif cherchait à effectuer un volume important de travail en peu de temps. Ceci poussa Sutter Health à trouver des alternatives au mode traditionnel de réalisation de projet qui, dans leur expérience, entraînait des dépassements de coûts et d'échéancier et se soldait par des litiges prolongés. De plus, Sutter Health devait faire face à de



nombreux défis dont : des dates butoirs importantes pour la conception et la construction, un échéancier accéléré (30 % plus rapide qu'en mode traditionnel), un coût maximal fixé à 302 M\$ et l'approbation du projet par l'*Office of Statewide Health Planning and Development (OSHPD)*, un organisme de réglementation unique en Californie qui prend entre 18 et 24 mois pour l'analyse et l'approbation des plans pour un nouveau projet. La RPI (IPD) s'est donc avérée comme une solution idéale pour Sutter Health.

ÉQUIPE DU PROJET

L'équipe de projet principal était formée de 11 parties prenantes qui ont toutes signé le formulaire d'entente intégrée (IFOA). Le tableau suivant identifie ces 11 membres de l'équipe intégrée :

Tableau A2-1 : Équipe de projet

Client	Sutter Health
Architecte	Devenney Group
Entrepreneur général	DPR Construction
Ingénieur en mécanique et en plomberie	Capital Engineering
Ingénieur en électricité	The Engineering Enterprise
Ingénieur en structure	TMAD-Taylor & Gaines
Entrepreneur/conception assistée en mécanique du bâtiment	Superior Air Handling
Entrepreneur/conception assistée en plomberie	J.W. McClenahan
Entrepreneur/conception assistée en électricité	Morrow Meadows
Protection incendie	Transbay Fire Protection
intégration de projet Lean/BIM	GHAFARI Associates

Au départ, l'idée était de signer une entente intégrée tripartite entre le client, l'architecte et l'entrepreneur général. Le gestionnaire de projet sénior pour Sutter Health croyait que ce nombre devrait augmenter pour inclure un maximum de partie prenante. En éduquant et en faisant la promotion des bénéfices escomptés du RPI, notamment le partage des gains/partage de la douleur (painshare/gainshare), il a pu élargir le contrat pour englober les 11 parties prenantes ci-dessus. Au niveau du partage des profits, ceux-ci ont été répartis au prorata de leur part de risque dans le projet. Le tableau suivant indique ce pourcentage :

Tableau A2-2 : Répartition du profit

Firme	Répartition du profit
DPR Construction	47.717 %
Devenney Group	17.163 %

J.W. McClenahan	9.648 %
Superior Air Handling	6.651 %
Morrow Meadows	6.320 %
Capital Engineering	3.755 %
TMAD-Taylor & Gaines	2.625 %
The Engineering Enterprise	2.351 %
GHAFARI Associates	1.908 %
Transbay Fire Protection	1.863 %

Afin d'offrir une direction et un support continu de même que de résoudre les problèmes qui surviendraient durant le projet, l'équipe de projet a formé un noyau qui fonctionnerait tel qu'un conseil d'administration avec un PDG à la tête. Ce noyau gèrait les stratégies et les attitudes des parties prenantes. Il se penchait également sur les décisions importantes qui affecteraient l'échéancier, le budget ou les risques de projet. D'autres parties prenantes se sont ajoutées à l'équipe de projet, soit comme consultants externes ou comme entrepreneurs spécialisés, cependant celles-ci signaient des ententes à taux fixe avec l'équipe pour services rendus.

PROCESSUS

En un premier lieu, Sutter Health a établi des objectifs clairs, précis et mesurables afin de définir les facteurs de succès du projet. Ces objectifs sont énoncés dans le tableau ci-dessous :

Tableau A2-3 : Objectifs de projet énoncés par Sutter Health

<p>But 01 : Achèvement de la conception structurale Le premier lot doit être émis au OSHPD pour révision au plus tard le 31 décembre 2008.</p>
<p>But 02 : Coût de projet Le coût total du projet ne dépassera pas 302 millions \$ (incluant la démolition du vieil hôpital)</p>
<p>But 03 : Achèvement du projet Le nouvel hôpital sera complet, pleinement opérationnel et ouvert au plus tard le 1er janvier 2013</p>

But 04 : Innovations dans la réalisation des soins de santé

Concept cellulaire de la conception des soins de santé à être utilisé

Concept du centre de contrôle à être utilisé

Système de dossier de santé électronique à être implanté

But 05 : Gérance environnementale

Le projet doit remplir une des conditions suivantes :

- les standards de certification LEED, niveau Argent pour établissement de santé
- les standards de certification LEED, niveau Argent selon NC v2.2
- obtenir la certification LEED, niveau certifié pour établissement de santé
- obtenir la certification LEED, niveau certifié selon NC v2.2

But 06 : Transformation de la réalisation des services de conception et de construction

Le bâtiment transformera de manière considérable le mode de réalisation de projet d'envergure dans le domaine de la santé au moyen de :

- haut pourcentage du budget sous l'entente IFOA
- nouvelle structure d'incitatifs (gainshare/painshare)
- nouvelles méthodes pour la définition des buts de projets
- nouvelles méthodologies de conception
- nouvelles méthodologies pour la planification et le suivi des tâches
- nouvelles méthodologies d'engagement des instances réglementaires
- Utilisation exhaustive du BIM et de la conception et construction virtuelle
- Utilisation du "Target Value Design"
- Mise en service et transfert du bâtiment sophistiqué
- Modélisation énergétique

L'équipe de projet a donc déployé plusieurs stratégies afin d'atteindre ces objectifs. Parmi ces stratégies :

- Une approche Lean à la conception et à la construction :
 - Une gestion par engagement des parties prenantes
 - La cartographie de la valeur (Value Stream Mapping) afin de planifier la phase de conception et ainsi respecter les dates butoirs imposées par Sutter Health
- L'utilisation du BIM collaboratif englobant toutes les disciplines ainsi que les corps de métier
 - Le développement d'une maquette très détaillée
 - L'utilisation du BIM pour :
 - Détection des conflits
 - Analyse de la constructibilité
 - Les échanges d'information numériques
 - Le balayage laser (laser scanning)
 - La vérification automatisée de conformité au code du bâtiment
 - L'estimation basée sur la maquette (model based estimating)
 - Les relevés de quantités

- La mise en place d'un Big Room, regroupant 240 personnes de toutes les disciplines et firmes formant l'équipe de projet.

BÉNÉFICES

Les bénéfices au niveau de l'échéancier du projet étaient :

- un achèvement des travaux six semaines avant la date limite, ainsi le jalon du premier patient a été devancé de six semaines depuis la finalisation de la programmation de l'espace clinique et objectif LEED en avril 2008, passant du 1er janvier 2013 au 15 novembre 2012.
- La conception a été achevée en 15.5 mois
- La période de conception pour la structure du bâtiment a été réduite à 8 mois au lieu des 15 mois prévu à l'échéancier original
- La revue des documents de la structure du bâtiment du projet par l'OSHPD a été drastiquement réduite passant de 24 mois à 11.5 mois. Tous les jalons pour la revue des plans ont été atteints

Les bénéfices au niveau des coûts du projet étaient :

- Au cours du projet, l'estimation des coûts a été réduite de 20 millions \$ afin d'atteindre le coût maximal ciblé de 320 millions \$
- durant la construction, il restait 2.2 millions \$ de la contingence de 5.8 millions \$
- Le lot de structure d'acier a été complété 1.5 million \$ en dessous du budget. Ceci a été accompli grâce à l'implication du fabricant de structure d'acier dès le début du projet. Ainsi il a pu rationaliser et optimiser les détails de connexion.
- Le début de la conception des plans détaillés a été reporté jusqu'à ce que le programme soit suffisamment avancé et figé. Ainsi, la phase de conception détaillée a été réduite et il est estimé que cela a sauvé 1.2 million \$ en honoraires.
- L'estimation basée sur la maquette a permis à l'équipe de projet de faire une mise à jour détaillée de l'estimation de projet toutes les deux semaines. Une réduction considérable du temps et de l'effort a été remarquée en appliquant cette méthode qui s'est avérée être 80 % plus efficace que la méthode traditionnelle d'estimation et de relevé de quantités à la main.

Les bénéfices au niveau de la performance du projet étaient :

- Une amélioration de la productivité entre 6 % à 28 % (voir tableau 3-1-4)
- Une baisse de la reprise en chantier entre 50 % à 95 % (voir tableau 3-1-5)
- Une amélioration de la productivité en chantier de 10 % en ce qui concerne la mise en place des plaques d'ancrages intégrés (structural embeds)

Tableau A2-4 : Amélioration de la productivité en chantier

Discipline	Référence	Planifié	Réelle	Projetée
Mécanique	100 %	105 %	116 %	120 %

Plomberie	100 %	100 %	104 %	106 %
Électrique	100 %	104 %	110 %	114 %
Charpente	100 %	122 %	125 %	128 %

Tableau A2-5 : Réduction de la reprise en chantier

Discipline	Référence	Réelle
Mécanique	7 %	0.5 %
Plomberie	10 %	0.5 %
Électrique	10 %	5 %
Charpente	5 %	0.5 %

Autres bénéfices obtenus au cours du projet :

- Environ 90 % moins de requêtes d'information (Requests for Information - RFI) et d'ordres de changement initiés par le client. Durant la construction, il y a eu 333 RFI et 26 ordres de changement tandis que traditionnellement ces nombres seraient de l'ordre de 3000 et de 400 respectivement.
- Une variation moyenne de seulement 0.5 % (de -1.3 % à + 2.7 %) dans la superficie des 10 espaces cliniques principale
- Un produit tel que construit qui correspond à ce qui a été modélisé (voir tableau 3-1-7)

Tableau A2-7 : Précision tel que construit vs ce qui a été modélisé

Discipline	Degré de précision
Mécanique	99 %
Plomberie	99 %
Électrique	71 %
Charpente	79 %

DÉFIS

Les défis rencontrés dans ce projet étaient :

- Un processus long et coûteux afin de mettre en place un contrat acceptable pour tous

- Une incompréhension et résistent quant à l'augmentation des coûts d'une certaine portion du projet afin d'optimiser le projet en entier.
- Des revues de projet multidisciplinaires fréquentes au lieu de revues à des étapes clés du projet
- Des problèmes d'interopérabilité entre les logiciels utilisés (par exemple entre les logiciels d'estimation et de planification)
- Un dossier/serveur de projet commun qui est accessible par tous
- Les restrictions imposées par les logiciels et le matériel informatique. Par exemple, la maquette architecturale a dû être divisée à deux reprises puisqu'elle devenait trop complexe.
- La mise en place du processus d'estimation basée sur la maquette est un processus long et ardu. Il a nécessité trois mois d'effort afin de pouvoir automatiser le processus.

LEÇONS APPRISSES

Les leçons apprises dans ce projet ont été :

- Former des partenariats avec les firmes que l'on connaît et dans lesquelles nous avons confiance
- Être prêt pour des négociations de contrats prolongées
- Être prêt pour un changement de culture et une transparence au niveau du partage de l'information qui serait considéré comme confidentiel normalement
- Il est bénéfique d'avoir un consultant dédié à l'implantation et à la gestion des approches Lean et BIM.
- Il est essentiel d'avoir un processus décisionnel efficace en place.
- Établir et communiquer les processus, les mesures de performances, les attentes, les défis attendus et les facteurs de succès très tôt dans le projet.
- Planifier et replanifier (encore et encore) chaque étape du projet
- Une communication saine et fluide est d'une importance capitale. Rien ne peut substituer des échanges en face à face.
- Il est important d'inclure le plus de corps de métiers et d'entrepreneurs spécialisés en amont
- Aucun changement ne doit être considéré comme mineur. Un changement jugé mineur par une discipline peut entraîner des conséquences très importantes dans une autre discipline.
- Il devient beaucoup plus coûteux de résoudre des conflits en chantier que dans la maquette. Ainsi, beaucoup de considération doit être mise sur le niveau de détail et le développement de la maquette.

Finalement, Christian et al. (2011) résume les leçons apprises sur ce projet par ceci :

Perhaps the greatest lesson learned that is transferable to future projects is this: integrated project delivery, Lean practices, and BIM are all most effective when intertwined into a single process and when they are implemented together as an entire package. Bringing together modelers, builders, architects, engineers and trades people as true partners, who share in the profit and loss of a project's outcome, has the most potential for success; it offers the promise not only of maximizing the profitability of an individual company, but of changing the entire industry

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ANNEXE 3 – ÉTUDE DE CAS – MOOSE JAW HOSPITAL, SASKATCHEWAN, CANADA

DESCRIPTION DU PROJET

- **Type de projet** : institutionnel (hôpital)
- **Coût** : 103.8 M\$
- **Superficie** : +/- 250 000 pi.ca, 115 lits
- **Mode de livraison** : RPI (IPD) (contrat IFOA- 7 parties)
- **Approches** : BIM et Lean
- **Client** : Ministère de la Santé et Five Hills Health Region (FHHR)
- **Calendrier**
 - Conception : début mars 2012 (13 mois)
 - Construction : avril 2013 à décembre 2014
 - Occupation : été 2015



Cette étude de cas présente le projet du nouvel hôpital à Moose Jaw à Saskatchewan/Canada. Le but derrière ce projet, lancé par le ministère de la Santé, est de réaliser *“un nouvel hôpital régional d’innovation qui permettra d’avoir un meilleur, plus sécuritaire service, pour la ville et ses environs”*(Rapport annuel de FHHR, 2012). Le travail de ce projet a suivi les directives du gouvernement provincial, il s’agit d’adopter: 1. une *“vision centrée sur le patient”* et 2. un modèle de livraison basé sur une *“équipe collaborative”*. Ce projet est le premier de son genre au Canada à utiliser la méthode **“ La réalisation de projet intégrée avec le Lean”** (IPLD - Integrated Project Lean Delivery). *“C’est un état d’esprit différent des processus de livraison conventionnels, dans lesquels tout le monde travaille en silo”*, a déclaré John Liguori, le directeur exécutif de la *“Five Hills Health Region”* et membre de l’équipe qui forme le noyau de la (RPI). *“Nous travaillons ensemble comme de véritables partenaires. Nous voulons que ce projet soit un succès pour nous tous ”*. (Boldt Company, 2013)

ÉQUIPE DU PROJET

L’équipe intégrée du projet a été sélectionnée pour faire suite à une demande de proposition (REF) lancée entre novembre 2011 et janvier 2012. Une équipe d’évaluation a examiné les soumissions et a envoyé les recommandations au ministère de la Santé qui a établi le contrat de PRI avec l’équipe gagnante.

L’équipe intégrée inclut les clients, les architectes et ingénieurs (concepteurs), l’entrepreneur général et l’entrepreneur spécialisé de mécanique et électricité qui collaborent dans un seul contrat (IFOA) pour concevoir et construire le nouvel hôpital. L’équipe gagnante comprend des firmes canadiennes et américaines (Boldt Company, 2013). Toute l’équipe est engagée à respecter le budget; les participants doivent être transparents, créatifs et collaboratifs. L’utilisation du BIM a été aussi exigée dans ce contrat.

Le tableau suivant identifie les 7 membres de l’équipe intégrée qui forment le “noyau” du projet :

Fonction	Firme
Clients	Ministère de la Santé Groupe “Five Hills Health Region
Architecte	Devenney Group Architects Stantec Architecture & Consulting
Entrepreneur Général	Graham Construction Boldt Company
Entrepreneur spécialisé (Mécanique, électricité)	Black & McDonald

PROCESSUS

Le projet a été basé sur un processus “3P” (Processus de Production et Préparation) établi sur les principes du “Lean Construction”. Le processus était itératif implique, à part l’équipe intégrée de professionnels, plus de 200 personnes incluant médecins, infirmières, thérapeutes, personnel d’entretien, etc. Des séances de conception immersives ont été établies durant 3 semaines d’atelier, dans lesquelles, des maquettes réelles ont été construites de certaines chambres ou zones de l’hôpital. Les participants ont aidé les professionnels à concevoir les maquettes afin de mettre en place les idées finales qui répondent aux besoins à long terme des communautés à qui le projet s’adresse. Ce processus a été suivi par une étape de validation afin de créer une vision partagée sur le concept, le coût et l’échéancier. L’équipe se réunit dans la “Big Room” physiquement trois jours consécutifs toutes les deux semaines pour travailler sur le projet (Rapport de FHHR, 2013).



D’autres moyens ont été également utilisés dans le projet afin de construire intelligemment et être plus productif, tel que la conception des éléments préfabriqués hors site. Des salles de bain, des “murs de tête” (Headwalls) en acier complet avec l’intégration des systèmes mécanique et électrique sont préassemblés. À l’extérieur, des panneaux de montage mural standard ont été préconstruits dans un mode de chaîne de montage où cette normalisation est estimée à réduire les coûts de main-d’œuvre par un plus de 60 % (Stantec Architecture & Consulting).



OUTILS/APPROCHES

Le BIM. Les protocoles du BIM ont été établis par l'équipe "noyau" afin d'aider à la coordination, la détection de l'interférence lors de l'intégration des systèmes; la planification; l'ordonnancement de la constructibilité. Le modèle BIM est utilisé aussi pour explorer les options de préfabrication et de préassemblage de composants de systèmes; et pour se prêter directement à la fabrication et à la production sur et hors site. Les logiciels Revit et Navisworks ont été utilisés pour ce projet, les documents sont consultés sur des iPad sur le chantier via l'application "PlanGrid".

Pull planning. Cette méthode de planification utilise les principes du Lean en créant le "Pull" vs "Push" contrairement aux méthodes conventionnelles de planification. Le système "Last Planner®" a été utilisé afin de créer le Pull planning des principales étapes et identifier les moyens nécessaires à la réalisation de chacun.



BÉNÉFICES

NIVEAU DU PROJET

- Conception et construction rapide- 2 à 3 fois par rapport à d'autres projets :
 - 13 mois de conception
 - La construction a débuté un an après le début de la conception
 - la structure d'acier a été construite en 6 mois (avril- octobre 2013),
 - Les dalles, les murs extérieurs, les éléments de l'enveloppe ont été mis en place en 1 mois.
- L'emploi de la préfabrication a permis une construction de meilleure qualité et plus rapide et sécuritaire.
- L'utilisation du modèle numérique (BIM) a permis une conception plus précise
- Aucun RFI ou Ordre de Changement (date de 25 février 2014)
- 85 % moins de reprises en chantier
- Travaux sur le chantier sans papier (utilisation de l'application PlanGrid)

NIVEAU ORGANISATIONNEL

Équipe du projet (professionnels, entrepreneurs) :

- Partage de risque
- Appréciation des défis des autres membres de l'équipe
- Tout le monde a pu considérer chaque caractéristique de conception, technique de construction, le matériel et la tâche de travail en même temps, faire des changements, et prendre des décisions réalistes.
- Les professionnels de conception ont eu moins de reprises de travail. L'échange des idées avec le gestionnaire du projet et les sous-traitants a été dès le départ et avant de s'engager dans les dessins.
- Le travail des entrepreneurs généraux était plus efficace, en travaillant dans le budget et fournissant un produit de haute qualité. «C'est la disposition de l'hôpital la plus efficace sur laquelle j'ai travaillé... L'objectif financier n'est plus à faire dans « le budget », le but et le point de vue de la réussite sont d'offrir une valeur égale pour moins de dépenses, ou plus de valeur au même niveau de dépenses."Art Winslow, le directeur de projet de Graham.
- Les sous-traitants ont eu une meilleure estimation du temps et des coûts à communiquer au gestionnaire de projet.

Client :

- «Je pense que la RPI a été plus qu'utile pour répondre à nos attentes, elle a été essentielle" Liguori- directeur exécutif de FHHR
- **Valeur ajoutée et qualité.** L'équipe de projet a su ajouté 12 000 pi.ca. (valeur ajoutée de 5,5 M\$) au projet à l'intérieur des coûts admissibles. "Faire plus rapide ne signifie pas

que nous faisons avec les méthodes de basses qualités " "À la mi-septembre, l'ensemble du projet était inférieur au coût admissible et l'équipe a travaillé pour atteindre le "premier coût ciblé". Liguori- directeur exécutif de FHHR

- **Économie d'espace.** La superficie du nouvel hôpital sera d'environ 10 % plus petit en la comparant avec les autres installations actuelles de la ville utilisant des méthodes traditionnelles de livraison.
- **Productivité.** L'amélioration de la productivité de la main-d'œuvre en chantier attendue d'être de l'ordre de 5-10 %
- **Élimination de gaspillages.** Par exemple, le client a fait des économies relatives aux prix d'impression, le fait que la consultation des documents sur le chantier a été effectuée en utilisant les iPad.
- **Certitude et respect du budget :** "Cela ne se produit pas par hasard ou de la chance..." " La RPI a permis à l'équipe de planifier méthodiquement, puis d'exécuter le plan de sorte qu'il y a peu ou pas de gaspillage ou reprise de travail". Liguori- directeur exécutif de FHHR
- **Économie dans le budget.** \$30 Millions moins que prévue. "C'est rare dans les projets de construction, mais le nouvel hôpital de Moose Jaw coûte 30 millions de moins que prévu initialement et devrait ouvrir ses portes à temps l'été prochain." Pamela Cowan, The Leader-Post April 30, 2014. « Nous le faisons pour 100 millions de dollars", "Une partie de celui-ci se trouve dans la réduction de l'espace." a déclaré Kyle Matthies, vice-président de (FHHR).

DÉFIS

1. Surmonter les paradigmes existants.
2. Apprendre à faire confiance aux autres.
3. Comprendre les principes de Lean et les appliquer.
4. Gestion d'une équipe de haute performance.
5. L'apprentissage et la mise en œuvre des outils LEAN pour les sous-traitants
6. S'ajuster à l'approche de coûts majorés
7. Développer l'outil d'établir les rapports "Earned Value ".

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DRAFT

Integrated Form of Agreement for Integrated Lean Project Delivery Among Owner, Architect & CM/GC.

The Integrated Form of Agreement (IFOA) is the contract model used for the Five Hills Health Region (FHHR) New Regional Hospital Project that features a single tri-party agreement between the Owners, the Prime Architect and the General Contractor. One of the unique things with this agreement is that the Designers and Builders put all or a significant portion of their profit at risk. In addition the Designers and Builders are incentivized to offer creative, innovative solutions to maximize quality to meet the Owners needs. Partners are rewarded by sharing in any cost savings with the Owners. The FHHR New Regional Hospital Project is the first project in Canada to adopt this type of construction contract.

The business terms and Exhibits have been removed purposely for the protection of each contributing Organization otherwise this is the actual document template.

We recognize the following contributors for their effort in developing this document and for their willingness to share it for the benefit of interested Peers and Organizations:



Five Hills Regional Health Authority



Government of Saskatchewan, Ministry of Health



Graham Design Builders



The Boldt Company



Stantec Architecture Ltd.



Devenney Group Architects



Black & McDonald

Integrated Agreement for Lean Project Delivery Among Owner, Architect & CM/GC

AGREEMENT
made as of the ___ day of _____ in the year Two Thousand and _____

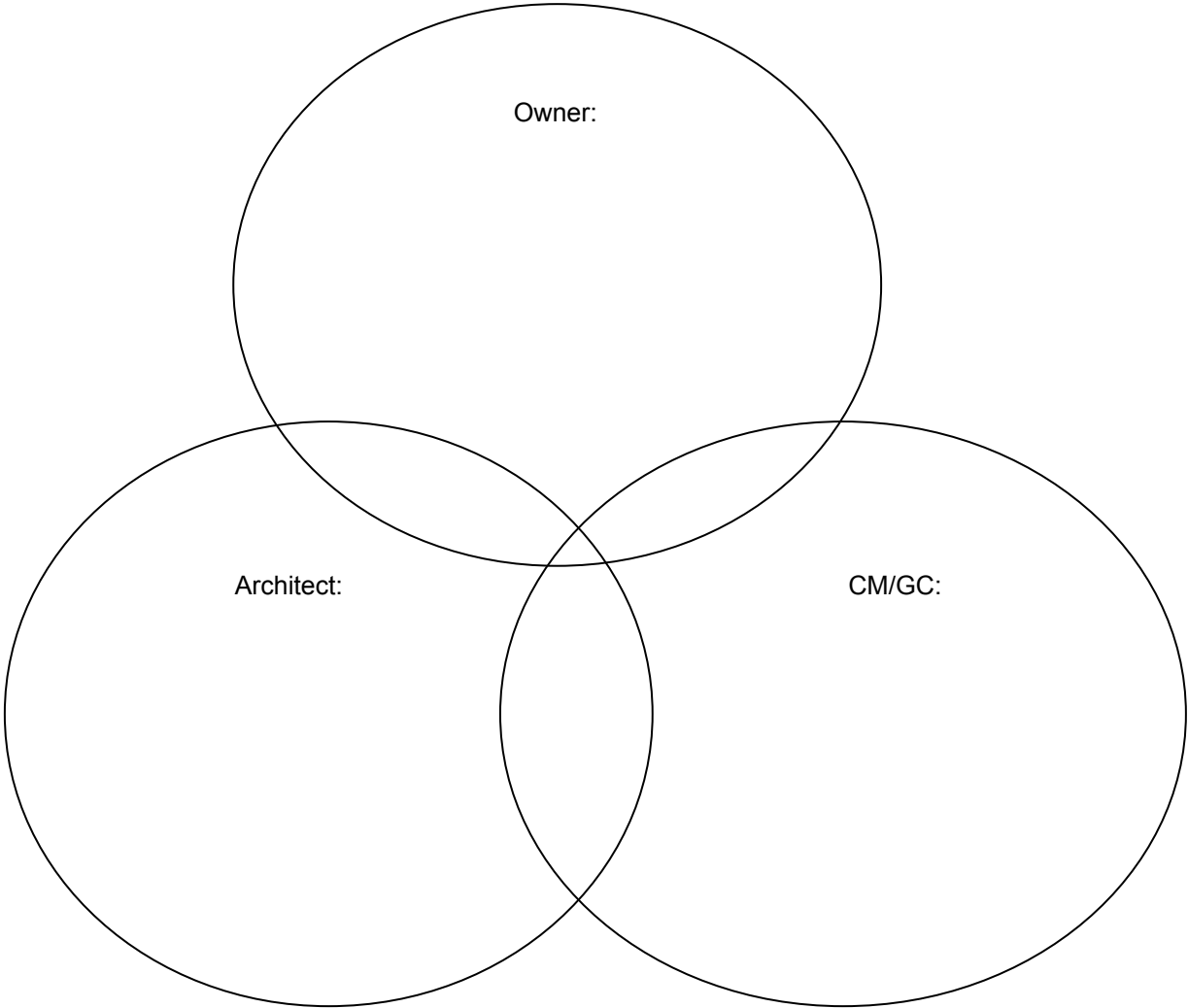


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This AGREEMENT is among Owner, Architect and CM/GC, who state and agree as follows.

A. INTEGRATED PROJECT DELIVERY

1. PROJECT FUNDAMENTALS

1.1 Project Parameters. The Project consists of planning, designing, constructing, and commissioning of the Project more specifically described in Exhibit 2. Owner's Project Business Case for the Project is predicated upon:

- 1.1.1 the requirements of Owner's master facility business plan;
- 1.1.2 the Allowable Cost; and
- 1.1.3 the Conceptual Project Schedule,

each as set forth in **Exhibit 2**.

The sufficiency of the Allowable Cost will be the subject of the Validation Study described in Section 9.3. During the Validation Phase, an Expected Cost will be prepared to estimate the budget for the Project. The Expected Cost, as adjusted in accordance with this Agreement, shall serve as the baseline for determining the amount of cost-savings on the Project, if any, for distribution to the Risk Pool IPD Team Members, which distribution shall be in accordance with the terms and conditions set forth in this Agreement and the IPD Team Risk Pool Plan. Assuming that the IPD Team can develop a design solution that meets the requirements of the Owner's Project Business Case within the Allowable Cost (and subject to the conditions precedent contained in Section 9.5), then the Core Group shall develop, review and approve a Target Cost in accordance with Section 10.1.

During the Design and Procurement Phase, the IPD Team will, using the principles of Target Value Design, design the Project as more specifically described in Article 11, with a realistic opportunity to construct the Project for no more than the Target Cost, as it may be adjusted in accordance with this Agreement. At the end of the Design and Procurement Phase, as one of a number of conditions precedent to the commencement of the Construction Phase, the Core Group shall develop, review and approve an EMP in accordance with Section 11.15.

1.2 Lean Project Delivery. The IPD Team shall implement the principles of Lean Project Delivery. The Parties acknowledge that fundamental to the success of Lean Project Delivery is the willingness and ability of all IPD Team Members to make and secure reliable promises as the basis for planning and executing the Project. Accordingly, the IPD Team Members shall ensure that the following elements are present for all promises:

- 1.2.1 the conditions of satisfaction are clear to all parties;
- 1.2.2 the promissor is competent to perform the promised actions, or has access to the competence to perform such actions, and has the wherewithal (materials, tools, equipment, instructions) to perform the promised actions;
- 1.2.3 the promissor has estimated the time to perform the task and has internally allocated adequate resources and has blocked the time on its internal schedule;
- 1.2.4 the promissor is sincere in the moment that the promise is made, only making the promise if it believes that the promise reasonably can be fulfilled; and
- 1.2.5 the promissor is prepared to accept the legal and reasonable consequences that may ensue if the promise cannot be performed as promised and will promptly advise the Core Group if confidence is lost that the task can be performed as promised.

1.3 Collaboration. In order to achieve the Owner's basic value proposition, each of the IPD Team Members shall fully collaborate with each other throughout all phases of the Project and agree to provide informed and accurate information concerning program, quality, cost and schedule. While each IPD Team Member will bring different expertise to each of these issues, all of these issues and the full weight of the entire IPD Team's expertise will need to be integrated throughout the

preconstruction process if the value proposition is to be attained. None of the IPD Team Members can proceed in isolation from the others; there must be deep collaboration and continuous and timely flow of information.

2. IPD ORGANIZATION AND GOVERNANCE

2.1 Integrated Project Delivery Team Formation. Architect, Owner, and CM/GC agree to form an integrated team to facilitate the planning, designing, constructing and commissioning of the Project. The IPD Team is comprised of (i) the Architect and the Architect's Consultants, (ii) CM/GC, Subcontractors and Suppliers, and (iii) Owner and Owner's Consultants and separate contractors (collectively, the "**Integrated Project Delivery Team**" or "**IPD Team**"; and individually, each an "**IPD Team Member**"). The IPD Team Members will make reasonable commercial efforts to share relevant information in a timely manner and to cooperatively collaborate for the benefit of the Project. Each of the IPD Team Members will be required to sign a Joining Agreement.

2.2 IPD Team Purpose and Intent. The purpose of the IPD Team is to facilitate collaborative planning, design, construction and commissioning of the Project. In order to permit the IPD Team Members to gain the benefit of an open and creative learning environment, each of the IPD Team Members shall make reasonable commercial efforts to:

- 2.2.1 share relevant ideas freely and in a timely manner and to establish an atmosphere of mutual respect and tolerance;
- 2.2.2 work together and individually to achieve transparent and cooperative exchange of relevant information relating to the Project, and to share ideas for improving Project delivery as contemplated in the Project Evaluation Criteria;
- 2.2.3 actively promote harmony, collaboration and cooperation among all entities performing on the Project; and
- 2.2.4 provide preconstruction services throughout the Validation Phase and early in the Design and Procurement Phase to facilitate an integrated, collaborative design process.

The integrated project delivery approach recognizes that each IPD Team Member's success is tied directly to the success of all other members of the IPD Team and encourages and requires the IPD Team Members to organize and integrate their respective roles, responsibilities and expertise, to identify and align their respective expectations and objectives, to commit to open communications, transparent decision-making, proactive interaction, problem-solving, the sharing of ideas, to continuously seek to improve the Project planning, design and construction processes, and, as it relates to the Risk Pool IPD Team Members, to share both the risks and rewards associated with achieving the Project objectives.

2.3 Trust. The IPD Team Members accept the relationship of mutual trust and confidence established with each other by this Agreement, and promise to furnish their professional skill and judgment and to collaborate and cooperate with each other and with other IPD Team Members in actively pursuing an integrated project and furthering the interests of the Project. The IPD Team Members recognize that each of their opportunities to succeed on the Project is directly tied to the performance of other IPD Team Members. The IPD Team Members shall therefore work together in the spirit of cooperation, collaboration, and mutual respect for the benefit of the Project, and within the limits of their professional expertise and abilities. Throughout the Project, the IPD Team Members shall use their best efforts to perform, or cause to be performed, the Work and the Services in an expeditious and economical manner consistent with the interests of the Project.

Notwithstanding the commitments in this Section 2.3 and elsewhere in this Agreement, no fiduciary relationship is intended and nothing in this Agreement shall create, or be deemed or implied to create, a fiduciary relationship between or among the Parties, the IPD Team or any other Project participants.

2.4 Core Group.

- 2.4.1 Purpose and Intent of Core Group. The "**Core Group**" is responsible for coordination and overall management and administration of the Project consistent with this Agreement and Lean Project Delivery principles. The Core Group shall exercise its authority in the

best interest of the Project and within the bounds of the rights and obligations of the Parties under this Agreement

- 2.4.2 Membership and Participation. The Core Group shall initially be comprised of the Owner, Architect and CM/GC, as represented by Owner's Representative, the Architect's Representative, and the CM/GC's Representative, respectively. This initial Core Group may invite others to become members of the Core Group and may also remove added members from the Core Group.

Meetings of the Core Group shall be facilitated by a member of the Core Group selected from time-to-time by the Core Group. The Core Group may invite others to attend (on a non-voting basis) meetings of the Core Group. Each Core Group member shall ensure that its Core Group representative attends all Core Group meetings and fulfills his or her responsibilities as a Core Group member. The Core Group may approve any member's designation of an alternate representative. Any proposed replacement of a Core Group representative shall be subject to the Core Group's approval, not to be unreasonably withheld or delayed.

- 2.4.3 Core Group Meetings.

- (a) Regular Meetings: The Core Group shall establish a regular meeting schedule, which in general should be no less frequently than monthly. The Core Group shall be responsible for reviewing and stimulating the progress of the Project and developing and ensuring compliance with the Project Evaluation Criteria. The Core Group shall also: (i) cause to be prepared, and review, periodic project evaluations; and (ii) plan and implement programs to improve Project performance. A Senior Management Representative from each of the Core Group members shall attend a Core Group meeting at least once each calendar quarter.
- (b) Urgent Meetings: In addition to the regularly scheduled meetings, a meeting of the Core Group may also be set at the request of any Core Group member, to allow the Core Group to address a matter of urgency. An Urgent Meeting shall be convened as quickly as all Core Group members can be assembled. Notice of an Urgent Meeting shall identify the issues to be addressed.
- (c) Separate Meetings: Core Group meetings shall not be combined with other Project meetings, so as to ensure their importance and promote the candour of exchange.
- (d) Unavailability of Representative: Notwithstanding Section 2.4.2, if a Core Group member is not able to attend either a regular or an Urgent Meeting because of a scheduling conflict, a temporary alternate may be designated in advance to attend.
- (e) Attendance by Teleconference: Any Core Group member's representative may participate in a Core Group meeting by means of telephone conference or other communications equipment by means of which all persons participating in the meeting can hear and speak to each other, and a representative participating in a meeting in such manner shall be deemed to be present in person at such meeting.
- (f) Quorum: A quorum for a meeting of the Core Group shall require attendance of a representative from each member of the initial Core Group described in Section 2.4.2., or their delegate(s). If a meeting is called and a quorum is not present, the meeting shall be adjourned for not less than twenty-four hours, with notice thereof to be provided as contemplated in Section 2.4.3(b).
- (g) Procedures: Except as otherwise provided for in this Agreement, the Core Group shall have the authority, by unanimous approval of all representatives, to

establish its own reasonable procedures for meetings, notices, minutes and all other matters necessary for its efficient operation.

(h) Minutes: The Owner's Representative shall keep minutes of all Core Group meetings and shall circulate such minutes to all Core Group members within 5 days after each meeting.

2.4.4 Authority. The Core Group shall have the authority expressly granted it by this Agreement.

2.4.5 Decision Making. The Core Group shall endeavour to make decisions unanimously. In the event of impasse, Owner may, in accordance with Article 24, issue directions that it believes to be in the best interest of the Project, subject to further resolution pursuant to the dispute resolution provisions of Article 31.

2.5 Project Communication Protocols. The Core Group shall establish the communication protocols for the Project (the "**Communications Protocols**"). If the Communications Protocols permit direct communication with Architect's Consultants, Subcontractors, Suppliers, Owner's Consultants or Owner's separate contractors (rather than such communication flowing through Architect, CM/GC or the Owner, as applicable), copies of all such communications shall be provided to the Core Group members as required by the Communications Protocols. The Communications Protocols shall also address the use of e-mail, establishment of web-based project management systems, production and publication of meeting minutes, and other issues relating to Project communication

2.6 Owner's Representative. Owner has appointed the individual listed on the Project Roster as Owner's Representative ("**Owner's Representative**"). Owner's Representative shall be authorized to act on its behalf with respect to the Project and shall be responsible for coordinating action among the Project participants, including any additional Owner personnel who must participate in decision making on the Project. Owner's Representative shall coordinate the activities of the Core Group.

2.7 Architect's Project Personnel. Architect has appointed the individual listed on the Project Roster as Architect's Principal ("**Principal**") whose duties shall include, without limitation, directing and coordinating the work of Architect and Architect's Consultants. Architect has also designated other individuals on the Project Roster to provide the Services required by this Agreement. Architect's Core Group member ("**Architect's Representative**") shall be the individual so designated on the Project Roster. Except in the case of illness, death or termination of employment, Architect shall not remove or replace any of the above individuals without the initial Core Group's prior written consent, not to be unreasonably withheld or delayed. Any replacement Principal or employee presented to the Core Group for approval shall have substantially equivalent or better qualifications than the Principal or employee whom he or she replaces.

2.8 CM/GC's Project Personnel. CM/GC has appointed the individual listed on the Project Roster as CM/GC's Project Executive ("**Project Executive**") whose duties shall include, without limitation, directing the work of CM/GC and coordinating work of the Subcontractors and Suppliers. CM/GC has also designated the other individuals designated on the Project Roster as Project Manager and Project Superintendent to provide services required by this Agreement. CM/GC's Project Manager and Project Superintendent shall possess a record of experience and performance on construction projects of comparable scope to the Project. CM/GC's Core Group member ("**CM/GC's Representative**") shall be the individual so designated on the Project Roster. Except in the case of illness, death or termination of employment, CM/GC shall not remove or replace any of the above individuals without the initial Core Group's prior written consent, not to be unreasonably withheld or delayed. Any replacement presented to the Core Group for approval shall have substantially equivalent or better qualifications than the individual whom he or she replaces. CM/GC shall designate the persons authorized to represent CM/GC who will generally be in attendance at the Project Site during performance of the Work.

2.9 Project Roster. The Owner shall revise the initial Project Roster from time to time to reflect changes in Core Group representatives pursuant to the terms of this Agreement.

2.10 Personnel Management. The Core Group shall not supervise or control any person employed by Architect, Architect's Consultants, CM/GC, Subcontractors, Suppliers, Owner, Owner's Consultants or Owner's separate contractors in connection with the Project; provided, however, that the Core Group may require any IPD Team Member to remove any person employed in connection with the Project if the Core Group determines that the presence of such person is detrimental to the performance of the Work or Services or that such person has engaged in conduct that the Core Group reasonably deems to be improper.

2.11 Duties. Duties, responsibilities and limitations of authority of CM/GC and Architect, as set forth in the Contract Documents, shall not be restricted, modified or extended without the consent of each member of the initial Core Group, which consent may be withheld in such member's sole discretion.

3. IPD RISK POOL AND INCENTIVE COMPENSATION

3.1 IPD Team Risk Pool.— In order to share in the rewards associated with achieving the Project objectives, each Risk Pool IPD Team Member agrees to make its At-Risk Amount available to fund certain Project cost overruns, if any, that do not otherwise form the basis of a Change Order, to the extent set forth in this Agreement and the IPD Team Risk Pool Plan, but only after and to the extent that the IPD Team Contingency has been exhausted. The **IPD Team Risk Pool** is the aggregate sum of the Risk Pool IPD Team Members' At-Risk Amounts. Further details regarding payments from the IPD Team Risk Pool will be set forth in the IPD Team Risk Pool Plan.

3.2 IPD Team Risk Pool Plan. The initial Core Group, in collaboration with the Risk Pool IPD Team Members, shall prepare a detailed plan (the "**IPD Team Risk Pool Plan**") that addresses the funding, administration, allocation, and distribution of the IPD Team Risk Pool, the Project cost-savings, and each of the items set forth in **Exhibit 10 ("Principles for Risk Pool Structure and Procedures")** in order to: (i) promote Lean Project Delivery principles among the Risk Pool IPD Team Members; and (ii) be available to fund certain Project cost overruns that do not otherwise form the basis of a Change Order, to the extent set forth in this Agreement and the IPD Team Risk Pool Plan, but only after and to the extent that the IPD Team Contingency has been exhausted.. As of the date of execution of this Agreement, certain details related to the creation and administration of the IPD Team Risk Pool Plan have not been finalized. The initial Core Group and the Risk Pool IPD Team Members shall endeavour to agree on the IPD Team Risk Pool Plan no later than the date of the adoption of the Target Value Design Plan. Once finalized and agreed upon, the IPD Team Risk Pool Plan shall form part of this Agreement as Exhibit 14. In the event the initial Core Group and the Risk Pool IPD Team Members are unable to agree on the IPD Team Risk Pool Plan, the Owner shall convene a meeting with the Risk Pool IPD Team Members' Senior Management Representatives to endeavour to agree on the IPD Team Risk Pool Plan. In the event the Senior Management Representatives of the Owner and the Risk Pool IPD Team Members are unable to agree on the IPD Team Risk Pool Plan, the Owner may terminate this Agreement for convenience.

3.3 Risk Pool IPD Team Members. "**Risk Pool IPD Team Member**" shall initially refer to each of Architect and CM/GC. Additional persons and firms may be added as Risk Pool IPD Team Members, upon agreement by both the Architect and CM/GC. Each Risk Pool IPD Team Member shall contribute to, and share in, the IPD Team Risk Pool on the terms and conditions set forth in the IPD Risk Pool Plan. Project participants, including Owner, Owner's separate contractors and Owner's Consultants, and any other IPD Team Member that is not a Risk Pool IPD Team Member shall have no right or obligation to contribute to, or share in, the IPD Team Risk Pool.

3.4 Incentives and Risk Sharing. In recognition of the Risk Pool IPD Team Members making their respective At-Risk Amounts available to fund certain Project cost overruns that do not otherwise form the basis of a Change Order, to the extent set forth in this Agreement and the IPD Team Risk Pool Plan, but only after and to the extent that the IPD Team Contingency has been exhausted, the Owner agrees, among other things, to share the Project cost-savings, if any, with the Risk Pool IPD Team Members. It is agreed that the Expected Cost, as adjusted in accordance with this Agreement, shall serve as the baseline for determining the amount of Project cost-savings (if any) to be

paid to the Risk Pool IPD Team Members. To the extent the Actual Cost of the Project is less than the Expected Cost, as adjusted in accordance with this Agreement, the difference shall be shared with the Risk Pool IPD Team Members in accordance with the IPD Team Risk Pool Plan (the "**Incentive Compensation**"). For clarity, the Owner, for the purpose of encouraging and incentivizing the Risk Pool IPD Team Members to deliver a successful Project, agrees that such Project cost-savings will be shared amongst and distributed to the Risk Pool IPD Team Members in accordance with the IPD Team Risk Pool Plan.

Except as expressly agreed to by the Parties under this Agreement, the Owner acknowledges and agrees that in the event the Actual Cost of the Project exceeds the Expected Cost, such costs shall be borne by the Owner.

B. GENERAL TERMS

4. DEFINITIONS

All words and expressions capitalized in this Agreement and the other Contract Documents shall have the meanings stated in the Definitions set forth in this Section or, if not in conflict, the meanings set forth elsewhere in the Contract Documents.

"**Actual Cost**" means the sum of the total Cost of the Work actually incurred by Architect and CM/GC in connection with the performance of all Phases of the Project plus the total of all At-Risk Amounts.

"**Agreement**" means this Integrated Agreement for Lean Project Delivery, by and among Owner, Architect and CM/GC.

"**Allowance**" has the meaning set forth in Section 11.19.

"**Allowable Cost**" has the meaning set forth in **Exhibit 2**.

"**Amendment No. 1**" means that amendment to this Agreement entered into by the Parties pursuant to Section 11.23.

"**Annotated Specifications**" means the complete set of Specifications, marked up to clearly show all changes, revisions and substitutions made during the Construction Phase.

"**Architect**" means the Party identified as such on the cover page of this Agreement.

"**Architect's Consultants**" means those design professionals identified on the Project Roster as an "**Architect's Consultant**" and retained to perform a portion of the Services under a subcontract with Architect or another of Architect's Consultants.

"**Architect's Representative**" has the meaning set forth in Section 2.7.

"**Architect's Supplemental Instruction**" or "**ASI**" has the meaning set forth in Section 24.8.

"**At-Risk Amounts**" means, collectively, that portion of the profit otherwise payable to Risk Pool IPD Team Members for performance of Services and Work pursuant to the IPD Risk Pool Plan.

"**Basic Warranty**" has the meaning set forth in Section 23.1.

"**BIM**" or "**Building Information Model**" means a digital representation of the physical and functional characteristics of the Project.

"**Building Regulations**" has the meaning set forth in Section 11.7.

"**Change Order**" has the meaning set forth in Section 24.4

"**Change Proposal Request**" or "**CPR**" has the meaning set forth in Section 24.9.

"**Claim**" has the meaning set forth in Section 31.3.

"**CM/GC**" means the Party identified as such on the cover page of this Agreement.

"**CM/GC's Fee**" means has the meaning set forth in Section 25.4 a portion of which is the CM/GC's At-Risk Amount.

"**CM/GC's Representative**" means the individual identified as such on the Project Roster.

"**Communications Protocols**" has the meaning set forth in Section 2.5.

"**Compensable Delay**" has the meaning set forth in Section 20.9.

"**Conceptual Project Schedule**" means the high level project schedule set forth in **Exhibit 2**

"**Construction Administration**" means the Services relating to Construction Administration as described in Exhibit 3.

"**Construction Change Directive**" has the meaning set forth in Section 24.6

"**Construction Documents**" means the documents, consisting of the Drawings and Specifications, to be prepared or assembled by Architect to describe the size and character of the Work to be constructed as part of the Project.

"**Construction Phase**" means that portion of the Work and the Services as described in Part E of this Agreement to be performed under this Agreement beginning upon commencement of the Construction Phase 11.24 and continuing through Final Completion.

"**Contract Documents**" means this Agreement, together with all exhibits hereto (including those adopted post-execution of this Agreement), Amendment No. 1, the Construction Documents, Schedules, and any Modification validly executed after execution of the Agreement.

"**Contract Time**" has the meaning set forth in Section 20.1.

"**Core Group**" has the meaning set forth in Section 2.4.1.

"**Cost of the Work**" means all direct and indirect costs incurred in connection with the Architect's and CM/GC's performance of the Project, including performance of all contractual obligations, whether or not expressly identified as a "Cost of the Work", by Architect and CM/GC, and as more particularly described in **Exhibit 7**, but excludes the At-Risk Amounts.

"**Date of Commencement**" has the meaning set forth in Section 20.2.

"**Day**" means calendar day unless otherwise specifically defined.

"**Deficient Work**" means any error, omission, breach or other non-conformance with respect to either the Work or Services to be provided under the terms of this Agreement.

"**Deliverables**" means the documents or other instruments of service to be prepared by a Responsible Designer, including without limitation those documents identified in **Exhibit 1**.

"**Design-Build Work**" has the meaning set forth in Section 11.8.1.

"**Design and Procurement Phase**" means that portion of the Work and the Services as described in Part D to be performed under this Agreement beginning upon commencement of the Design and Procurement Phase 10.10 and ending prior to the commencement of the Construction Phase as described in Part E of this Agreement..

"**Differing Site Conditions**" has the meaning set forth in Section 21.1.

"**Disclosing Party**" means the party disclosing the Proprietary Information.

"**Dispute Resolution Proceeding**" means a proceeding between or among two or more of the IPD Team Members pursuant to any of the mechanisms set forth in Article 31 to resolve Claims.

"**Distributed Profit**" means, in respect of a Risk Pool IPD Team Member, the aggregate of that portion of its At-Risk Amount and that portion of the Incentive Compensation that are actually distributed to the Risk Pool IPD Team Member pursuant to the IPD Team Risk Pool Plan.

"Drawings" means the graphic and pictorial portions of the Contract Documents, including the Building Information Model ("BIM") showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

"Estimated Maximum Price" or **"EMP"** has the meaning set forth in Section 11.15.

"Event of Default" has the meaning set forth in Section 30.1.

"Excusable Delay" has the meaning set forth in Section 20.8.

"Expected Cost" has the meaning set forth in Section 9.3.3.

"Fee" means that portion of the total compensation under this Agreement payable to a Risk Pool IPD Team Member which is deemed to be, or allocated to, the profit or corporate overhead of such Risk Pool IPD Team Member pursuant to the IPD Risk Pool Plan. The portion of total compensation allocated to profit or corporate overhead may be different in the Validation Phase and the Design and Procurement Phase than in the Construction Phase.

"Final Completion" has the meaning set forth in Section 22.6.

"Final Payment" has the meaning set forth in Section 25.6.

"Fraud or Wilful Misconduct" with respect to any Party or Risk Pool IPD Team Member means the fraud or Wilful Misconduct of any of such Party's or Risk Pool IPD Team Member's Senior Officers or employees.

"General Conditions" has the meaning set forth in Section 11.15.3.

"Hazardous Materials" means any and all contaminants, pollutants, wastes, flammables, explosives, radioactive materials, hazardous or toxic materials, hazardous or toxic wastes, hazardous or toxic substance or contaminant and all other materials defined by or governed by *The Environment Management and Protection Act, 2002* (Saskatchewan) and *The Environmental Assessment Act* (Saskatchewan) and any Regulation thereunder, or other applicable federal, provincial or local law or regulation. For the avoidance of doubt, the determination as to whether any material is or is not a Hazardous Material for the purpose of this Article 19 and the determination of permissible concentrations of such Hazardous Materials shall be made based under the laws and regulations in effect as of the date CM/GC brought such material to the Site.

"Incentive Compensation" has the meaning set forth in Section 3.4.

"Indemnified Party" has the meaning set forth in Section 27.2

"Indemnifying Parties" has the meaning set forth in Section 27.2

"Independent Expert" has the meaning set forth in Section 31.9.

"Inexcusable Delay" has the meaning set forth in Section 20.10.

"Integrated Project Delivery Team" or **"IPD Team"** has the meaning set forth in Section 2.1.

"IPD Team Member" has the meaning set forth in Section 2.1.

"IPD Team Risk Pool" has the meaning set forth in Section 20.10

"IPD Team Risk Pool Plan" has the meaning set forth in Section 3.1.

"IPD Team Contingency" means the contingency amount, as determined by the initial Core Group as part of the Validation Study, that is available to address errors, omissions or any other breach of, or non-conformance with, the terms of this Agreement, by CM/GC, Architect or a Risk Pool Consultant and to pay for items that are properly considered a Cost of the Work, but which were not included in the amount described in Section 11.15 and are not the result of items specified in Article 24 as forming the basis of a Change Order.

"Joining Agreement" means an Agreement to be signed by each IPD Team Member. The form of the Joining Agreement shall be agreed by the initial Core Group on or before the date of execution of the IPD Risk Pool Plan.

"Joint Site Investigation" has the meaning set forth in Section 6.2.

"Lean Project Delivery" means promoting Project efforts to pursue the following objectives: (i) increasing the relatedness of members of the Integrated Project Delivery Team; (ii) collaborating throughout planning, design, construction and commissioning with all members of the IPD Team; (iii) planning and managing the Project as a network of commitments; (iv) optimizing the Project as a whole, rather than any particular piece; and (v) tightly coupling learning with action (promoting continuous improvement throughout the life of the Project).

"Lien" has the meaning set forth in *The Builders' Lien Act* (Saskatchewan).

"Look Ahead Plan" means the look ahead plan described in Section 8.3.

"Modification" means: (i) a written amendment to this Agreement signed by all Parties; (ii) a Change Order; (iii) a Construction Change Directive; or (iv) an Architect's Supplemental Instruction issued by Architect.

"Milestone Schedule" has the meaning set forth in Section 8.6.

"Nonconforming IPD Work" has the meaning set forth in Section 23.1.

"Non-IPD Risk Pool Consultant" means any Consultant that is not a Risk Pool IPD Team Member.

"Non-IPD Risk Pool Subcontractor" means any Subcontractor that is not a Risk Pool IPD Team Member.

"Non-Risk Pool IPD Team Member" means any IPD Team Member that is not a Risk Pool IPD Team Member.

"Notice of Potential Claim" has the meaning set forth in Section 20.13.

"OC Services" means those Services to be performed by Owner's Consultants pursuant to the Contract Documents.

"Owner" means the Party identified as such on the cover page of this Agreement.

"Owner's Consultant" means a design consultant retained by the Owner other than the Architect and the Architect's Consultants.

"Owner's Project Business Case" means the non-confidential portions of Owner's business case included in **Exhibit 2**.

"Owner's Representative" has the meaning set forth in Section 2.6.

"Owner's Retained Costs" means:

- (a) the cost of labour, materials and equipment relative to Owner-supplied equipment for the Project (except the cost of installation by CM/GC of any Owner-supplied equipment as provided in the Construction Documents);
- (b) compensation payable to Owner's Consultants;
- (c) compensation payable to Owner's separate contractors;
- (d) taxes on the Work and Services excluding PST paid directly by the CM/GC;
- (e) costs and fees required to secure all permits (other than the required building permits) tests, inspections, reports, licenses, approvals and consents required for proper completion of the Project, pursuant to the Contract Documents or by any laws, ordinances, rules, regulations or orders of public authorities having jurisdiction as set forth in Exhibit 9;
- (f) subject to Article 26, costs of examinations, audits and verifications performed by or on behalf of the Owner; and
- (g) any other costs identified as Owner's Retained Costs in this Agreement.

“Owner’s Separate Contractor” means a contractor retained by the Owner other than the CM/GC, the Suppliers and Subcontractors.

"Party" means any of Architect, CM/GC and Owner.

"Payment Applicant" has the meaning set forth in Section 25.5.1.

"Payment Application" means an application for payment submitted by Architect or CM/GC.

"Payment Protocol" has the meaning set forth in Section 11.21.2.

"Pencil Draw" has the meaning set forth in Section 25.5.3.

"Phase Plan" means the Phase planning document for a particular Phase, prepared by CM/GC and submitted to the Core Group for acceptance.

"Phases" means, collectively, the Validation Phase, the Design and Procurement Phase, the Construction Phase and the Post Construction Phase.

"Planning System" has the meaning set forth in Section 8.1.

"Post Construction Phase" means that portion of the Work and the Services as described in Part F of this Agreement to be performed under this Agreement after completion of the Construction Phase.

"Principal" has the meaning set forth in Section 2.7.

"Product Data" means, collectively, illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by CM/GC, a Subcontractor or Supplier to illustrate materials or equipment for a portion of the Work.

"Project" means all planning, design, construction and commissioning of the Work, and the performance of all Services by the Architect and CM/GC set forth in this Agreement during all Phases.

"Project Evaluation Criteria" means, collectively, benchmarks, metrics, or standards of evaluation developed by the Core Group and used throughout the Project as a basis for evaluating the IPD Team and continuously improving Project performance.

"Project Documents" has the meaning set forth in Section 29.2.1.

"Project Executive" has the meaning set forth in Section 2.8.

"Project Roster" means the list of representatives of Core Group members and Risk Pool IPD Team Members, which is maintained and updated from time to time by the Owner. The initial Project Roster is attached hereto as **Exhibit 11**.

"Project Specific Insurance Policy" or **"Project Specific Policies"** has the meaning set forth in **Exhibit 5** and includes the Subcontractor Default Insurance policy described in Exhibit 5.

"Proprietary Information" has the meaning set forth in Section 0.

"Punch List" has the meaning set forth in Section 22.2.

"Record Drawings" means a set of Drawings clearly showing, to the extent reasonably possible, all significant changes, revisions and substitutions made to the Construction Drawings during the Construction Phase, including without limitation field changes and the final location of all mechanical equipment, utility lines, ducts, outlets, pipes, structural members, walls, partitions and other significant features.

"Records" has the meaning set forth in Section 26.1.

"Responsible Designer" shall mean the person or entity that has responsibility for preparing the Drawings and/or Specifications for a particular portion of the Work.

"RFI" means a request for information regarding an uncertainty with respect to any portion of the Work submitted in writing by CM/GC, Subcontractor or Supplier to Owner or Architect.

“Risk Pool Consultant” means any Consultant that is a Risk Pool IPD Team Member.

"Risk Pool IPD Team Member" has the meaning set forth in Section 3.3.

"Risk Pool Subcontractor" means any Subcontractor that is a Risk Pool IPD Team Member.

"RLWP" has the meaning set forth in Section 25.3.

"Samples" means physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

"Senior Executive Meeting" has the meaning set forth in Section 31.8.

"Senior Management Representative" means the individual appointed by each of the Core Group members as set forth in the Project Roster.

"Senior Officers and Employees" means, with respect to any IPD Team Member, (i) persons who have been appointed to a corporate office of such party; (ii) persons designated as Core Group Representatives; (iii) persons designated as Senior Management Representatives; and (iv) the most senior person employed by such party who is directly responsible for day-to-day supervision of the party's activities on the Project.

"Services" means those services to be performed by Architect pursuant to this Agreement and as described in **Exhibit 3** and the RLWP.

"Set-based design" means carrying multiple design options forward and deferring decisions until the last responsible moment as further described in Section 11.10.

"Shop Drawings" means, collectively, drawings, diagrams, schedules and other data specially prepared for the Work by CM/GC, a Subcontractor or Supplier to illustrate some portion of the Work.

"Site" means the Project site as described in **Exhibit 11**.

"Site Documents" has the meaning set forth in Section 18.3.

"Special Meeting" has the meaning set forth in Section 31.6.

"Specifications" means that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems and standards for the Work, and performance of related services.

"Subcontractor(s)" means the individuals or firms retained by CM/GC, or by a Subcontractor or Supplier of CM/GC, to install or furnish work, labour or materials or provide other services or otherwise provide on-site labour in connection with the Work.

"Submittals" means, collectively, Shop Drawings, Product Data, Samples and similar documents to be prepared or submitted by CM/GC, a Subcontractor or Supplier for review by Architect pursuant to the Contract Documents.

"Substantial Completion" has the meaning set forth in Section 22.1.

"Substantial Completion Date" has the meaning set forth in Section 20.3.

"Suppliers" means material and equipment suppliers, not performing work on Site, engaged by CM/GC or Subcontractors of any tier.

"Target Cost" has the meaning set forth in Section 10.1.

"Target Value Design Plan" means the plan developed as described in Section 10.4.

"Termination for Convenience" has the meaning set forth in Section 30.7.

"Third Party" means an individual, legal personal representative, corporation, body corporate, firm, partnership, trust, trustee, syndicate, joint venture, limited liability company, association, unincorporated organization or governmental authority, other than an: (i) Indemnified Party, or (ii) IPD Team Member.

"Third Party Claim" means a claim, counterclaim, complaint, demand, proceeding, action, cause of action, suit and investigation of any nature or kind whatsoever and howsoever arising, whether known or unknown, whether in law or in equity or pursuant to contract or statute, and whether in any court of law or

equity or before any arbitrator or other body, board or tribunal, against an Indemnified Party by a Third Party and any resulting damages, liabilities, obligations, losses, penalties, interest, assessments, charges, costs and expenses, including without limitation reasonable legal fees, disbursements and court costs, incurred by the Indemnified Party.

"Urgent Meeting" means a meeting of the Core Group, set at the request of any Core Group member, to address a matter of urgency.

"Validation Phase" means that portion of the Work and the Services as described in Part C of this Agreement to be performed under this Agreement prior to the commencement of the Design and Procurement Phase as described in Section 10.10.

"Validation Study" means the written report prepared by the IPD Team addressing whether a facility can be designed and constructed to deliver the services described in Owner's Project Business Case within the Allowable Cost and within the Conceptual Project Schedule.

"Value Engineering Proposal" or "VEP" has the meaning set forth in Section 11.11.

"Warranty Reserve" means a dollar sum certain, as determined by the initial Core Group at the time of Substantial Completion that reflects the amount the initial Core Group is allocating for warranty work during the Warranty Period.

"Wilful Misconduct" means any act or omission by a party that was intended to cause, or was in reckless disregard of, or wanton indifference to, the harmful consequences which the party acting or failing to act knew (or should have known) would result from such act, omission or failure to act.

"Work" means the construction and services required from the CM/GC by the Contract Documents, whether completed or partially completed, and includes all other labour, materials, equipment and services provided or to be provided by CM/GC to fulfill CM/GC's obligations.

"Work Authorization" means a document executed by the Parties to authorize and agree to a limited scope of services during the Validation Phase, the Design and Procurement Phase or the Construction Phase.

5. **INTERPRETATION**

5.1 **Purpose.** The IPD Team will develop the Construction Documents with the intent of providing sufficient information to satisfy the permitting and regulatory authorities and to convey to field personnel and fabricators information necessary for the proper execution and completion of the Work. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. CM/GC shall furnish, construct and install all Work shown or reasonably inferable from the Contract Documents as being necessary to produce the indicated results, including items, appurtenances and devices incidental to or necessary for a sound, secure, and complete construction and installation.

5.2 **Organization.** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control CM/GC in:

5.2.1 dividing the Work among the Subcontractors and Suppliers; [Not Used]; or establishing the extent of Work to be performed by any trade. IPD Team Members shall recommend methods for streamlining the Contract Documents to the Core Group.

5.3 **Industry Meaning.** Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

5.4 **Hierarchy of Documents.** If there is a conflict, the following relative order of priority shall apply:

5.4.1 fully executed Modifications;

5.4.2 Amendment No. 1;

- 5.4.3 this Agreement, excluding the exhibits hereto;
- 5.4.4 the exhibits to this Agreement; and
- 5.4.5 the Construction Documents.

5.5 Disagreement. In the event of uncertainty or disagreement concerning the meaning or interpretation of the Contract Documents, questions shall be referred to the Core Group, subject to further resolution pursuant to the dispute resolution provisions of Article 31.

5.6 Words and Principles of Interpretation. The following principles of interpretation shall apply to this Agreement (including the recitals and the exhibits hereto), unless the context clearly requires otherwise:

- 5.6.1 a reference to a person includes its successors and permitted assigns;
- 5.6.2 the singular shall include the plural and the masculine shall include the feminine, and vice versa;
- 5.6.3 the word "or" is not exclusive;
- 5.6.4 references in this Agreement to Architect shall, unless the context clearly indicates otherwise, include the Architect's Consultants;
- 5.6.5 the words "include", "includes" and "including" are to be construed as meaning "include without limitation", "includes without limitation" and "including without limitation", respectively;
- 5.6.6 whenever the consent or approval of a Party is required as a condition of any right, obligation, action or event, such Party's consent may not be unreasonably withheld, conditioned or delayed except where this Agreement expressly provides otherwise;
- 5.6.7 references in this Agreement to the CM/GC shall, unless the context clearly indicates otherwise, include the Subcontractors and Suppliers.

6. OWNER PROVIDED INFORMATION

6.1 Project Business Case. Attached as **Exhibit 2** is a copy of non-confidential portions of Owner's Project Business Case.

6.2 Joint Site Investigation Plan. The Core Group shall develop a plan for developing the scope of preconstruction investigations at or concerning the Site (collectively, "**Joint Site Investigation**"). During the Design and Procurement Phase, the IPD Team shall advise the Core Group in writing of all information needed from others to design and construct the Project. The Core Group will review any existing information and assess to what extent additional investigations should be pursued and shall identify in writing any observed deficiencies or discrepancies in the information Owner provides during each Phase. IPD Team Members shall describe and advise the Core Group of additional investigations or information reasonably required to prepare the Construction Documents, any costs associated therewith to be considered Owner's Retained Cost. During each of the Design and Procurement Phase and the Construction Phase, Owner shall make the Site available to Architect, Architect's Consultants, CM/GC, Subcontractors, Suppliers and the Owner's Consultants at all times.

6.3 Preconstruction Information. Owner shall provide anticipated preconstruction information as it becomes available to the Owner, which shall include the following:

- 6.3.1 reports, surveys, drawings and tests concerning the conditions of the Site which are required by law or that are in the Owner's care, custody or control;
- 6.3.2 surveys describing physical characteristics, legal limitations and utility locations for the Site, and a written legal description of the Site, including, as applicable, grades and lines of streets, alleys, pavements and adjoining property and structures; adjacent drainage; rights-of-way, restrictions, easements, encroachments, zoning, deed restrictions, boundaries and contours; locations, dimensions and necessary data pertaining to existing

buildings, other improvements and trees; and information concerning available utility services and lines, both public and private, above and below grade, including inverts and depths. All information on the surveys shall be referenced to a Project benchmark;

- 6.3.3 reports and appropriate professional recommendations and other services of soils, geotechnical, environmental, and other engineers or professionals, as necessary for proper design and construction of the Project, including, but not limited to, test borings, test pits, soil bearing values, percolation tests, air and water pollution tests, ground corrosion and resistivity tests, including necessary operations for determining subsoil, air and water conditions;
- 6.3.4 structural, mechanical, chemical, air and water pollution tests, tests for Hazardous Materials, and other laboratory and environmental tests, inspections and reports which are required by law or that are in the Owner's care, custody or control;
- 6.3.5 investigation of existing conditions within a structure to be demolished or remodelled to the extent necessary to remodel or demolish the building, in whole or in part; and
- 6.3.6 such other information as may be reasonably required by the IPD Team to design and construct the Project.

6.4 Access to Existing Documents. To the extent that documents exist, Owner shall provide interested parties access to existing documents, including existing site and building design and record drawings, surveys, records of underground utilities, and other available existing documents with reasonable promptness and without cost or expense. IPD Team Members shall review the information furnished with reasonable care and advise the Core Group in writing of any observed errors, inconsistencies, inaccuracies, or incompleteness of which they become aware and which are likely to prompt CM/GC to include additional contingency in its estimates or require a designer to make a worst case assumption that might prove wasteful if additional investigation was performed. Each IPD Team Member shall submit a reasonable set of options for additional preconstruction investigation of existing conditions for Core Group consideration, including the cost and potential benefit of the differing levels of preconstruction investigation, which the IPD Team Member believes is prudent. To the extent an IPD Team Member has performed as described above, it shall be entitled to rely upon the accuracy of the information described above to the extent that it is not contradicted by the Contract Documents.

6.5 Soils Report. Architect shall review the information provided in the reports described in Section 6.3.3 and shall coordinate with the Architect's Consultants to confirm that the information provided is adequate for preparation of the Construction Documents (but not for professional or technical adequacy). Architect and the Architect's Consultants shall conform their design to the geotechnical recommendations and shall, after submitting the final design to the Owner's geotechnical engineer for review and comment, provide written certification that final design does conform. The Owner's geotechnical engineer shall review the final Construction Documents for conformance to the report. Verification of the submittal to the Owner's geotechnical engineer shall be made in writing to Owner.

6.6 Coordination/Cooperation. Architect shall be responsible for coordinating the information provided by Owner, Owner's Consultants, and CM/GC to prepare coordinated Construction Documents pursuant to this Agreement. For clarity, the Architect is not responsible for the technical or professional adequacy of such information or for the timeliness of the information and the Architect's coordination obligation does not relieve the Owner, the Owner's Consultants or the CM/GC from any of their obligations or liability for the technical and professional adequacy of such information. Pursuant to this coordination obligation, Architect shall meet, confer, cooperate and collaborate, as necessary or appropriate, with the Owner's Consultants and the other IPD Team Members. The Communications Protocols shall address how information developed in those meetings is to be recorded and distributed. At the time of signing this Agreement, each Party confirms that it has reviewed this Agreement and understands the level of cooperation, collaboration, and preconstruction services required of it.

6.7 Legal/Accounting Services. Owner shall determine the necessity of and furnish all legal, accounting, and insurance counselling services necessary for the Project, including such

auditing services as Owner may require to verify Payment Applications or to ascertain how or for what purposes IPD Team Members use the monies paid by or on behalf of Owner.

6.8 Division of Responsibility. Attached as **Exhibit 9** is a matrix setting forth the relative roles and responsibilities of Owner actions and decisions under this Agreement as well as other IPD Team Members. IPD Team Members shall be entitled to rely upon any person identified in that matrix, as may be modified in writing during the Project, as having authority to act on behalf of the designated IPD Team Member with respect to any subject matter identified as such person's responsibility in the matrix.

6.9 Project Metrics. The Core Group, as a basis for performing Target Value Design, shall assist Owner in developing the Project Evaluation Criteria which is a defined list of specific values, goals, outcomes, objectives and other such metrics which will serve as the basis for establishing the specific parameters for the Project.

7. WORK AND SERVICES

7.1 Standard of Care. Each of the IPD Team Members acknowledges that Owner, not being skilled in such matters, is relying upon each professional for the technical and professional adequacy of its services. None of Owner, Owner's Consultants or Owner's separate contractors shall perform any duties of Architect or CM/GC, or assume any responsibility or liability for the professional or technical adequacy of the Services performed by or on behalf of the Architect or of the Work performed by or on behalf of the CM/GC. As provided throughout the Contract Documents, each IPD Team Member shall perform its designated services or work, as applicable, in a competent professional manner in accordance with the degree of care and skill ordinarily exercised by members of the same profession or industry performing similar services or work, as applicable, under similar circumstances in metropolitan areas of the Province of Saskatchewan for projects of this size, complexity, and construction process. No IPD Team Member assumes any responsibility for tasks outside of its professional expertise or capability, or outside the scope of its licensure.

7.2 Errors and Omissions.

7.2.1 Intent.

By establishing an IPD Team, assembling the Project participants early in the design process, and integrating the construction and design professionals throughout all Phases of the Project, Owner intends to minimize the risk of delay, disruption and cost exposure experienced in a traditional project delivery model. By participating in the integrated delivery model, each of the participants believes that the overall risks to the Project and each of the participants is reduced.

7.2.2 Project Risk Assessment.

During the Design and Procurement Phase, and before submitting the EMP proposal, the IPD Team will carefully examine the site at which the Work will be performed and all of the documents included in the Contract Documents available at the time; recommend performance to the Core Group of reasonable investigations essential to a full understanding of the difficulties that may be encountered in performing the Work; and acquaint themselves with, and advise the Core Group concerning, the conditions under which the Work is to be performed, including, without limitation, laws, codes and other restrictions on Architect's, CM/GC's, Subcontractors' and Suppliers' operations, local labour conditions, local weather patterns, restriction in access to and from the Project site, prior work performed by others on the Project, and obstructions and other conditions relevant to the Work or Services being performed and the Project site and its surroundings.

With the exception of conditions which qualify as Differing Site Conditions or otherwise qualify as a Change Order under Article 24, the Allowable Cost, Expected Cost, Target

Cost and Estimated Maximum Price shall not be adjusted as a result of any variance between actual site conditions and the conditions shown or represented in the Contract Documents; provided, however, that any costs actually incurred by the CM/GC or the Architect in connection with any such variance will be reimbursed as a Cost of the Work. The Allowable Cost, Expected Cost, Target Cost, EMP and Contract Time shall be adjusted by appropriate Change Order in the event of any variances between actual conditions which were not discovered or discoverable through reasonable investigation in accordance with this Section, and the conditions shown or represented in the Contract Documents.

7.2.3 Errors and Omissions Discovered prior to Substantial Completion.

- (a) With the exception of circumstances which qualify as a Change Order under Article 24, and subject to the limitation of liability in Article 28 if, during the Project, Deficient Work caused by CM/GC, Architect or a Risk Pool Consultant (whether violating the standard of care or not) is discovered prior to Substantial Completion, the cost to correct such Deficient Work shall be paid as a Cost of the Work.
- (b) In the case of Deficient Work caused by a Subcontractor, Supplier or a Non Risk Pool IPD Team Member that is discovered prior to Substantial Completion, the cost to correct such Deficient Work shall be at the expense of such Subcontractor, Supplier or Non-Risk Pool IPD Team Member as the case may be and not reimbursed as a Cost of the Work. The Core Team shall exert reasonable efforts to cause such Subcontractor, Supplier or Non-Risk Pool IPD Team Member to correct such Deficient Work. In the event such Subcontractor, Supplier or Non-Risk Pool IPD Team Member fails to correct such Deficient Work, the initial Core Team shall cause the correction of such Deficient Work, the cost of which shall be reimbursed as a Cost of the Work and subject to the limitation of liability in Article 28, provided always that any steps taken by the initial Core Team in this regard does not relieve the Subcontractor, Supplier or Non-Risk Pool IPD Team Member from its obligations.
- (c) For certainty, the limitation of liability in Article 28 has no application to and shall not be for the benefit or protection of any Subcontractor, Supplier or Non-Risk Pool IPD Team Member.

7.2.4 Errors and Omissions where Actual Cost Exceeds Expected Cost. Where the Actual Cost exceeds the Expected Cost, as adjusted in accordance with this Agreement, such cost overrun is to be funded using the IPD Team Risk Pool, provided that only the following costs shall be considered for the purposes of calculating such additional Cost of the Work to be funded using the IPD Team Risk Pool on the understanding that the IPD Team Risk Pool will be used only after and to the extent the IPD Team Contingency has been exhausted and in the manner set forth in this Agreement and the IPD Team Risk Pool Plan:

- (a) for delays caused by GM/GC's, Architect's or a Risk Pool Consultant's Deficient Work, the actual additional Cost of the Work paid or reasonably incurred by Owner to the extent caused by such delay;
- (b) for Deficient Work caused by CM/GC, Architect or a Risk Pool Consultant that causes additional Cost of the Work that would not have been incurred had the Deficient Work been corrected prior to completion of the Construction Documents, 100% of the actual Cost of the Work paid or reasonably incurred by Owner to the extent caused by such Deficient Work;
- (c) for Deficient Work caused by CM/GC, Architect or a Risk Pool Consultant that causes additional Cost of the Work that, at least in part, would have been incurred had the Deficient Work been corrected prior to completion of the Construction Documents but which are more costly as a result of being added

during the Construction Phase, the increased Cost of the Work, as determined by the Core Group; and

- (d) for Deficient Work caused by a Subcontractor, Supplier or a Non-Risk Pool IPD Team Member but corrected by the initial Core Team pursuant to Section 7.2.3(b), 100% of the actual Cost of the Work paid or reasonably incurred by Owner to the extent caused by such Deficient Work and corrected by the initial Core Team pursuant to Section 7.2.3(b), provided always that any steps taken by the initial Core Team in this regard does not relieve the Subcontractor, Supplier or Non-Risk Pool IPD Team Member from its obligations.

7.2.5 Pursuit of Insurance Recovery. In the event of any Deficient Work for which a Project Specific Insurance Policy is, or may be, available to respond, the Parties shall take prompt action to pursue recovery against such available Project-Specific Insurance Policy. While the efforts to collect from Project-Specific Insurance Policy are pending and subject to the requirements of Section 7.2.3 above, the Owner will continue to pay the Cost of the Work as set forth in Section 7.2.4. If and to the extent proceeds are recovered from the available Project-Specific Insurance Policy, the recovered proceeds less deductibles and costs of collection as approved by the Core Group shall be added to the Allowable Cost, Expected Cost, Target Cost and EMP by way of Change Order. If and to the extent any deductibles on account of the Subcontractor Default Insurance policy (as described in Exhibit 5) are paid as a Cost of Work, such amount shall be added to the Allowable Cost, Expected Cost, Target Cost and EMP by way of Change Order.

Any and all reasonable costs of collection in connection with recovery of insurance or recovery against Non-Risk Pool IPD Team Members shall be reimbursed as part of Cost of the Work.

7.3 Quality Initiative. The goal of Lean Project Delivery is production of defect-free work at the least cost and in the least time possible. Defect detection after the hand-off of work between trades or disciplines is costly both in time and dollars. Inspection is not a value-adding activity. Assuring an understanding of the conditions of satisfaction and completion in accordance with that understanding is essential to establishing proper workflow. To the maximum extent possible, quality should be controlled at the source, where the work is being performed, and by those individuals performing the work.

7.4 Built-In Quality Plan. Architect and CM/GC, in collaboration with other IPD Team Members, shall participate and develop a built-in quality plan that, at a minimum, addresses the following issues:

7.4.1 confirming that conditions of satisfaction are clearly communicated to Project participants in the Contract Documents; training workers on the harm generated by work failing to satisfy the conditions of satisfaction and the benefits of standardized work practices (and their continuing improvement); developing the use of mock-ups, first-run studies, early completion of standard work units, and similar efforts to physically document acceptable levels of quality; effective use of any permit-processing period to enhance quality initiatives; providing quality checklists (specific, task-based) for use by workers to self-evaluate quality, establish benchmarks, and structure continuous improvement; design of feedback mechanisms for on-Site managers and other quality assurance or inspection entities to review early work product and assure completion according to conditions of satisfaction; integration of quality review and assurance with hand-off criteria and the Look Ahead Plan; protocols for trades to discuss and assure quality at hand-off of work; procedures for immediately addressing quality failures by the workers originally performing the work to assure minimum cost and maximum learning; procedures for recognizing outstanding performance and quality according to the conditions of satisfaction; and measurement of Project Evaluation Criteria to track performance and to support continuous improvement. Testing. Unless otherwise provided in the Contract Documents, the

Core Group shall arrange for all structural, mechanical, electrical, chemical, and other laboratory tests,

inspections, reports and approvals during the Construction Phase, as required by the Contract Documents and by laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction. All such tests, inspections, reports and approvals, except those identified as Owner's responsibility pursuant to **Exhibit 9**, shall be paid for as Cost of the Work. The Core Group shall arrange for the special tests and inspections required by building codes and the costs for such tests and inspections shall be paid as Cost of the Work. Architect shall identify all tests, inspections, reports and approvals required to meet all applicable laws, ordinances, rules, regulations or orders of public authorities having jurisdiction, including the building codes.

7.6 Testing and Inspection Requests. Tests, inspections, reports and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be arranged for and made at an appropriate time in the progress of the Work so as to cause no delay. CM/GC shall give Architect or the designated inspection agency sufficient advance notice of when all tests and inspections are to be made so Architect, or the designated inspection agency may observe such procedures. Unless otherwise provided in Contract Documents, CM/GC shall make arrangements for such tests, inspections, reports and approvals with the independent testing agency or entity selected by the Core Group and with the appropriate public authority. Except as provided in the Contract Documents, Owner will pay for tests, inspections, reports and approvals as Cost of the Work. Requests for tests, inspections, reports and approvals shall be included in the pull planning process. Where advance notice of such tests, inspections, reports or approvals is required by the public authority, CM/GC shall provide such advance notice in accordance with any of the rules or regulations or orders of the said public authority. If Architect is to observe tests, inspections or approvals required by the Contract Documents, Architect will do so promptly and, where practicable, at the normal place of testing.

7.7 Additional Testing. If Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included elsewhere in the Contract Documents, Owner will request CM/GC to make arrangements for such additional testing, inspection or approval by an entity acceptable to Owner, and CM/GC shall give timely notice to Architect of when and where tests and inspections are to be made so Architect may be present for such procedures. If such procedures for testing, inspection or approval reveal that portions of the Work fail to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures shall be subject to the provisions of Section 7.2. If such procedures for testing, inspection or approval reveal that portions of the Work do comply with requirements established by the Contract Documents, all costs associated therewith shall be added to the Allowable Cost, Expected Cost, EMP and the Target Cost, and the Contract Time shall be adjusted, by Change Order pursuant to Article 24.

7.8 Certifications. Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by CM/GC and promptly delivered to Architect.

7.9 Uncovering Work. If a portion of the Work is covered contrary to the request of Owner, Architect, or any governmental authority or to requirements specifically expressed in the Contract Documents or the built-in quality plan, the applicable portion of the Work, if required in writing by Architect, Owner, or any governmental authority, shall be uncovered for observation and replaced. If a portion of the Work has been covered which Architect, Owner or any governmental authority has not specifically requested to observe prior to its being covered, Owner may request to see such Work and it shall be uncovered by CM/GC. If such Work is:

7.9.1 [Not Used].

7.9.2 in accordance with the Contract Documents, costs of uncovering and replacement shall be added to the Allowable Cost, Expected Cost, EMP and the Target Cost, and the Contract Time shall be adjusted, by appropriate Change Order; or

7.9.3 not in accordance with the Contract Documents, the provisions of Section 7.2 shall apply.

7.10 [Not Used].

7.11 Right to Suspend Work. If CM/GC fails to correct Work which is not in accordance with the requirements of the Contract Documents, Owner may order CM/GC to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of Owner to stop the Work shall not give rise to a duty on the part of Owner to exercise this right for the benefit of CM/GC or any other person or entity.

7.12 Right to Correct Non-compliant Work. If CM/GC fails within a seven (7) day period after receipt of written notice from Owner to commence and continue correction of Work which is not in accordance with the Contract Documents with diligence and promptness, Owner shall have the right, but not the obligation, to immediately cause that work to be corrected by its separate contractors. In such case, a Change Order shall be issued reducing the Allowable Cost, the Expected Cost, the Target Cost and the EMP by Owner's reasonable cost of correcting such Work which is not in accordance with the Contract Documents, as determined by the Core Group.

7.13 Acceptance of Non-compliant Work. If Owner prefers to accept Work which is not in accordance with the Contract Documents, Owner may do so instead of requiring its removal and correction, in which case a Change Order shall be issued reducing the Allowable Cost, the Expected Cost, the Target Cost and the EMP by an amount, as determined by the Core Group, which fairly and equitably reflects: (i) the reduced value of the Project with such Work which is not in accordance with the Contract Documents; or (ii) saved costs, whichever is less.

7.14 Suspension to Preserve Quality. Owner may suspend work by written notice to the IPD Team if suspension of work is justified by unforeseen conditions which might adversely affect quality of the Work if such work is not suspended. Such a suspension shall be considered an Excusable Delay. If CM/GC, in its reasonable judgment, believes that a suspension is warranted because of unforeseen circumstances which may adversely affect quality if work is continued, CM/GC shall immediately notify the Core Group, in writing, of its belief and shall continue the work unless and until otherwise directed by Owner in accordance with the Contract Documents. Any suspension under this Section shall be treated as a suspension under Section 30.6.

7.15 Building Information Models.

The Core Group shall prepare a **BIM Protocol** that addresses the protocols, expected levels of development, and authorized uses of Building Information Models on this Project and that assigns specific responsibility for the development of Building Information Models. The Architect and the CM/GC agree to prepare and use Building Information Models in the performance of the Project in accordance with the BIM Protocol. As of the date of execution of this Agreement, certain details related to the BIM Protocol have not been finalized. The Core Group shall endeavour to develop and finalize the BIM Protocol no later than the date of the adoption of the Target Value Design Plan, at which point the Core Group will incorporate the BIM Protocol into this Agreement as Exhibit 15.

8. PROJECT PLANNING AND SCHEDULING

8.1 Basic Requirements. The planning and scheduling to be performed on the Project shall be "**pull scheduling**" using the Last Planner System™, or an equivalent system (the "**Planning System**"). In order to be pull-based, the Planning System must be based upon requests from IPD Team Members to other Project performers, including Owner's separate contractors and Owner's Consultants, upon whom the requester's work is dependent, and promises made by the upstream performer about when it will finish the work to agreed-upon hand-off criteria, in order to enable the downstream performer to begin its performance. At a minimum the system must include a Milestone Schedule, collaboratively created phase schedules, "**make-ready**" Look Ahead Plans, weekly work plans, and a method for measuring, recording, and improving planning reliability.

8.2 Phase Planning. The Phase Plan must be based on collaborative planning by all IPD Team Members who will perform in a phase, who, working backwards from the Milestone Schedule, create collaborative phase schedules indicating when work is required to be completed. Promptly following commencement of each Phase, CM/GC shall coordinate conversations between each of the IPD Team Members required to perform work in the applicable Phase, including direct

conversations between IPD Team Members who will receive work or deliver work (including both physical works and information) to one another. The purpose of the conversations is to put the performers in action making direct requests and promises to each other, and specifically discussing and negotiating the hand-off criteria or conditions of satisfaction that are then mutually understood and agreed upon. Following completion of these planning discussions, CM/GC shall prepare a consolidated Phase Plan for review and acceptance by the Core Group.

8.3 Make-Ready Look Ahead Plan. As part of the Project planning and scheduling, the Core Group shall prepare a "**make-ready**" Look Ahead Plan (minimum duration of 6 weeks or as approved by the Core Group), that identifies for each task or item of work appearing within the planning window, whether any constraints (issues that if they continue to exist would prevent the performer from making a reliable promise that the work can be performed as indicated on the applicable Phase Plan) exist, and if so, what person has personally promised that the constraint will be removed and by when.

8.4 Weekly Look Ahead Meetings. The Core Group will determine the frequency of Look Ahead meetings during the Validation Phase and the Design and Procurement Phase and will determine when weekly look ahead meetings will be initiated for the Project. Once the weekly look ahead meetings are initiated, a rolling six-week Look Ahead Plan for the coming weeks will be prepared and reviewed by the Core Group members to assess any constraints that would keep someone from making a reliable promise on the work plan for the upcoming weeks. For any remaining constraints, the Core Group shall solicit promises for removal, and confirm available work for the coming week. Then, each of the subsequent weeks covered by the applicable Look Ahead Plan is reviewed to assess whether work in that week can be made available as workable backlog. On a regular basis, the IPD Team Members shall consider whether any unconstrained work can be performed early in the event a performer gets ahead or a circumstance arises that prevents a performer from doing certain work as promised. Such work shall be identified as workable backlog and shall be communicated to the Core Group in writing. Only work authorized by the Core Group is to be considered workable backlog; work that has not been released as workable backlog shall be considered out of sequence.

The Core Group shall obtain clear promises from Project performers, including completion dates for removing constraints, and shall obtain declarations of completion on previous promises. The Core Group shall update the Look Ahead Plan on a weekly basis, marking those tasks with no constraints.

8.5 Weekly Work Planning Meetings. The Core Group will determine the frequency of work planning meetings during the Validation Phase and the Design and Procurement Phase and when weekly planning meetings will be initiated for the Project. Once the weekly planning meetings are initiated, the IPD Team will participate in collaborative weekly work planning sessions to identify among the IPD Team Members, based upon the work identified in the applicable Look Ahead Plan as constraint-free, what specific work will be completed to agreed-upon hand-off criteria (so that the follow-on task can be commenced) during each day and each week.

The IPD Team Members shall make reasonable commercial efforts to provide daily communication of Work and Services that have been completed, any variation from what was promised, and any revision for the remainder of the Look Ahead Plan. The Core Group shall track planning reliability and assess the root cause of any planning or scheduling variations and shall make reasonable commercial efforts to continuously improving planning reliability.

8.6 Milestone Schedule. During the Design and Procurement Phase, CM/GC, in collaboration with all IPD Team Members, shall prepare a preliminary Milestone Schedule for Core Group review and approval ("**Milestone Schedule**"). The preliminary Milestone Schedule shall include the entire Project, including preconstruction and construction activities of CM/GC, Architect, Owner, Owner's Consultants and Owner's separate contractors, but shall only be prepared at a milestone level. The preliminary Milestone Schedule shall reflect the agreed Contract Time and shall not replace the pull-scheduling to be done collaboratively by the IPD Team.

Throughout the Project, CM/GC, in collaboration with all IPD Team Members, shall update the preliminary Milestone Schedule monthly focusing on major milestones relied upon for tracking purposes. CM/GC shall coordinate and integrate the preliminary Milestone Schedule with the services and activities of the IPD Team and the Owner's Consultants and Owner's separate contractors. As the Project proceeds, the

preliminary Milestone Schedule shall be updated to indicate proposed activity sequences and durations, milestone dates for receipt and approval of pertinent information, submittal of the Target Value Design Plan, Target Cost, EMP proposal, delivery of materials or equipment requiring long-lead time procurement, procurement of Owner's Consultants and separate contractors, Owner's occupancy requirements showing portions of the Project having occupancy priority, and proposed dates of Substantial and Final Completion.

C. VALIDATION PHASE

9. VALIDATION STUDY

9.1 Work Authorizations; Authorized Scope of Work. No Work or Services shall be performed in the Validation Phase or the Design and Procurement Phase except pursuant to a Work Authorization signed by each of the Owner, Architect and the CM/GC.. Compensation for all Work and Services performed during the Validation Phase and the Design and Procurement Phase shall be paid as set forth in Article 25.

9.2 Allowable and Expected Cost Parameters. Owner has established the Allowable Cost in accordance with extensive internal procedures. Owner has advised Architect and CM/GC that, except as provided in this Agreement, the Allowable Cost cannot be revised without receiving Owner approval, which approval can be granted or withheld in accordance with Section 9.5.

9.3 Validation. During the Validation Phase, Architect, in collaboration with the IPD Team Members, shall prepare and present a Validation Study to the Core Group, which study shall:

- 9.3.1 include each item identified in **Exhibit 1**;
- 9.3.2 confirm and validate whether the Project can be completed so as to meet the requirements of the Owner's Project Business Case, within the Conceptual Project Schedule and for the Allowable Cost;
- 9.3.3 include an estimated budget for the Project (the "**Expected Cost**"), provided however that the Expected Cost is not a guaranteed maximum price; and
- 9.3.4 validate that the Owner's budget for Owner's Retained Costs is reasonable, based on the scope of the Project, and determine if any portion of the budget for these costs can be allocated to Owner's Contingency.

9.4 Expected Cost.

- 9.4.1 As part of the Validation Study, the Architect, in collaboration with the IPD Team Members, shall prepare an Expected Cost, which shall comprise the following:
 - (a) total cost to Owner of all elements of the Cost of the Work for the Project, including the total costs of professional services, labour, materials and supervision to be furnished by Architect and CM/GC during the Validation Phase, the Design and Procurement Phase, the Construction Phase and the Post-Construction Phase;
 - (b) At-Risk Amounts;
 - (c) the IPD Team Contingency;
 - (d) General Conditions; and
 - (e) all Allowances;

each in the amount agreed upon by the Core Group during the Validation Phase.

The Expected Cost shall not include amounts for Owner's Retained Costs, Owner's Contingency or the costs of land, rights of way, financing or other items for which Owner is responsible.

- 9.4.2 The IPD Team Contingency is a contingency amount determined by the initial Core Group during the Validation Phase that is available to address Deficient Work (whether

violating the standard of care or not) as provided in Section 7.2.3 and to pay for items that are properly considered a Cost of the Work but which do not form the basis of a Change Order. The Core Group will determine when and how the IPD Team Contingency will be allocated among budget line items. Although it is identified as a line item in the Project budget, the IPD Team Contingency is not a separate fund, but is tracked separately for the sole purpose of a risk and cost management tool.

- 9.4.3 The Risk Pool IPD Team Members shall not include separate contingencies in the Expected Cost to address refinement of designs, materials, or equipment; instead, the Risk Pool IPD Team Members shall include realistic pricing based upon listed assumptions and understandings concerning the scope of the Services and the Work required by the pending design. Owner's Options.

Once the Core Group has approved the Validation Study, Owner shall review the Validation Study, including the Expected Cost, and

- 9.5.1 If the Allowable Cost equals or exceeds the Expected Cost, the Owner shall, without limiting the Owner's rights pursuant to Section 30.7, provide written notice to Architect and CM/GC directing them to proceed with the Target Value Design and preparation of the Target Cost; or
- 9.5.2 if the Allowable Cost is less than the Expected Cost, the Owner shall:
- (a) increase the Allowable Cost, such that it is greater than the Expected Cost;
 - (b) work with the IPD Team to reduce the scope of the Project and cause the Architect to prepare an amended Validation Study in accordance with Section 9.3; or
 - (c) terminate this Agreement for Owner's convenience, in which case the provisions of Section 30.7 shall apply.

D. DESIGN AND PROCUREMENT PHASE

10. TARGET COST

10.1 Target Cost. If Architect and CM/GC are directed to proceed with the Target Value Design and preparation of the Target Cost pursuant to Section 9.5, the Core Group, in conjunction with the Senior Management Team, shall establish a milestone date for development of the Target Cost for the Project. The Architect, in collaboration with the IPD Team Members, shall develop and submit the Target Cost to the Core Group for approval. The Target Cost shall be based upon the Owner's Project Business Case, the Validation Study, and the Target Value Design Plan. The Target Cost and CM/GC's cost models shall include an estimate, based on the information then available, of the following:

- 10.1.1 total cost to Owner of all elements of the Cost of the Work for the Project, including the total costs of professional services, labour, materials and supervision to be furnished by Architect and CM/GC during the Validation Phase, Design and Procurement Phase, the Construction Phase, and the Post-Construction Phase;
- 10.1.2 At-Risk Amounts;
- 10.1.3 [Not Used];
- 10.1.4 [Not Used];
- 10.1.5 IPD Team Contingency;
- 10.1.6 [Not Used];
- 10.1.7 General Conditions; and
- 10.1.8 Allowances.

The Target Cost shall not include amounts for Owner's Retained Costs, Owner's Contingency or the costs of land, rights of way, financing or other items for which Owner is responsible.

The Target Cost shall guide the IPD Team's development of the design for the Project and the Drawings and Specifications and is not a guaranteed maximum price.

10.2 Owner's Contingency. As a part of the Target Value Design, the initial Core Group will establish an acceptable Owner's Contingency to be used to fund some or all of Owner's obligations under Article 24. Prior to Substantial Completion, the Owner's Contingency will not be used without the Core Group's approval. The Owner's Contingency will not be part of any IPD Team Risk Pool Plan and any unused amount will be returned 100% to Owner. For clarity, the Owner agrees that it continues to be responsible for funding all of its obligations under Article 24 notwithstanding that the Owner's Contingency may be exhausted or that the Core Group may not approve the use of Owner's Contingency for such purpose.

10.3 Target Value Design. The IPD Team Members will provide Target Value Design support services throughout development of the design. Depending on the stage of document development, the scope and nature of this ongoing effort may change. The specific estimates listed below are "roll-up estimates" or "gate estimates" to provide Owner the opportunity to confirm that the entire Project, at those milestones, is proceeding within the approved budget parameters. Those estimates shall be the by-product of the continuous Target Value Design process and are not intended to be performed by progressing the documents to a certain stage of development and then requesting that the IPD Team provide pricing information. The IPD Team shall provide ongoing cost information and estimating of portions of the Services and Work as the Contract Documents are developed, and such other cost exercises that the Core Group deems advisable. Formal estimates shall include amounts for escalation in labour and material prices in the Design and Procurement Phase and the Construction Phase ("**Escalation**"). In connection with the establishment of the EMP, the initial Core Group may determine to fix the Construction Phase Escalation associated with certain commodities by use of commonly accepted price indexes or other price-based measures.

10.4 Target Value Design Process. The Parties acknowledge that Target Value Design is intended to make explicit that value, cost, schedule, and constructability (including work structuring) are basic components of the design criteria. The intent is to design the Project to a detailed estimate. The Core Group shall develop written guidelines or protocols for use with Target Value Design principles throughout the design process. At a minimum, these protocols shall address the following:

- 10.4.1 method to establish initial target costs for major components and systems;
- 10.4.2 method for determining other value elements of Target Value Design;
- 10.4.3 schedule for selection of Architect's Consultants, Subcontractors, Suppliers, Owner's Consultants and separate contractors during design;
- 10.4.4 method for forming and meeting structure for cross-functional teams (clusters) of designers and builders for major components and systems of the Site and structures;
- 10.4.5 method for aligning all IPD Team Members behind the objective that the Target Cost (as adjusted in accordance with this Agreement) not be exceeded without express approval of Owner;
- 10.4.6 method to assure continuous cost analysis and reporting procedures within the cross-functional teams (clusters) for monitoring estimated costs against target costs;
- 10.4.7 creation of a target value team comprised of the cross-functional/cluster leaders to meet regularly and frequently, with responsibility for evaluating Target Value Design tradeoffs and opportunities, (including function/cost trade-offs) and authority to direct value engineering and adjustments of the component/system costs up or down to maintain total project target cost; and
- 10.4.8 the frequency of preparing the milestone roll-up estimates described in Section 10.3.

10.5 Cost Model Milestones. As an augmentation to the Target Value Design effort, CM/GC shall consolidate its ongoing cost modeling efforts and create milestone reports on a schedule developed by the Core Group. Along with each report, CM/GC shall provide a narrative report identifying and explaining any variances from previous reports.

10.6 [Not Used].

10.7 Cost Model Reconciliation. The Project cost model will continuously be reviewed for conformance with the Target Cost. If the anticipated Project costs as shown in the Project cost model fail to align with the Target Cost, the Core Group shall determine what actions to take in order to align the cost model and the Target Cost. The Target Cost is subject to adjustment as provided in this Agreement, including Section 24.3.

10.8 Role of Cost & Schedule. Cost and schedule are design criteria. It will not be tolerated to only have those issues reviewed at the milestones described below. The Core Group shall establish protocols and procedures to ensure that design proceeds fully informed by the cost and schedule implications of the design.

10.9 IPD Team Meetings. The Core Group shall schedule regular meetings for the IPD Team. IPD Team Members shall collaborate regarding all Project elements, including Site use and improvements, selection of materials, building systems, and equipment. CM/GC shall provide ongoing review and recommendations on construction feasibility; actions designed to minimize adverse effects of labour or material shortages; time requirements for procurement, installation and construction completion; and factors related to construction cost including estimates of alternative designs or materials, preliminary budgets and possible economies.

10.10 Owner's Retained Costs. During the Target Value Design process, the initial Core Group will continue to study and confirm the Owner's Retained Costs and apply the principles of Lean Project Delivery to those costs and determine if any portion of those costs can be added to Owner's Contingency.

11. DEVELOPMENT OF DESIGN DOCUMENTS

11.1 Scope. The Core Group shall oversee development of the design documents for the Project. A description of the scope of services to be provided by Architect and the design information to be developed during each task of the design is set forth in **Exhibit 3**. The Milestone Schedule for the Design and Procurement Phase, shall include integrated plans for periodic reviews and milestone budget confirmations.

11.2 Information. Owner shall provide full information regarding requirements for the Project and access to operational personnel in order to permit the IPD Team to understand Owner's design objectives, constraints and criteria, including space requirements and relationships, flexibility and expandability, special equipment and systems and Site requirements. The IPD Team shall assist Owner in identifying and determining the necessary information and requirements.

11.3 [Not Used].

11.4 Government Regulations. All design services, whether provided by Owner's Consultants, Owner's separate contractors, Architect, Architect's Consultants, CM/GC, Subcontractors or Suppliers, shall comply with all applicable legal requirements in effect during the Design and Procurement Phase and any governmental authority from whom permits, approvals or other consents for the Project may be required. Responsible Designer shall use due care in identifying and determining the meaning and effect of all applicable building code provisions and other applicable building requirements and restrictions, and take such reasonable measures as may be necessary to meet such requirements. Such measures shall include, without limitation, filing and/or revising any required applications, drawings, specifications, calculations or other documents, and complying with all applicable conditions precedent to the extent necessary to secure any required permits, approvals or other consents for construction of the Project at the Site in accordance with the standard of care set forth in Section 7.1. Owner shall pay all costs and fees required to secure necessary permits, approvals and other consents.

11.5 Pull-Based Design Production. In order for the IPD Team to provide full value during the Design and Procurement Phase, the development of the Construction Documents shall be based upon "pull-based" planning as described elsewhere in the Contract Documents. Architect, Architect's Consultants and Owner's Consultants shall avoid "advancing" aspects of the design beyond what has been anticipated and approved for any given time period as specified in the applicable Look Ahead Plan. The IPD Team shall only pursue work that is shown on the applicable Look Ahead Plan as being performed in that week or that has been identified as "workable backlog".

11.6 Owner's Approvals. All approvals required from Owner shall be in writing. The approval by Owner of Deliverables shall not constitute a waiver by Owner of, or require Owner to relinquish, any of its rights under this Agreement, nor shall it relieve Architect or Architect's Consultants or other Responsible Designers from any of their obligations or liability for the technical or professional adequacy of their services.

11.7 Role of CM/GC. It is not CM/GC's, Subcontractors' or Suppliers' responsibility to ascertain that design documents prepared by Architect, Architect's Consultants or Owner's Consultants are in accordance with laws, statutes, ordinances, building codes, and rules and regulations applicable to the design and construction of the Project (collectively, "**Building Regulations**"). However, if CM/GC or any Subcontractor or Supplier observes at any time that portions of the Contract Documents are at variance with Building Regulations, it shall promptly notify Architect and Owner in writing, and Architect and Owner shall ensure that necessary changes are accomplished by appropriate modification.

11.8 Design-Build/Design Assist Work.

- 11.8.1 The Work may also include design-build scopes of work ("Design-Build Work"), for which a Subcontractor or Supplier shall primarily be responsible for design and construction. For Design-Build Work, Architect shall assist Owner in timely specifying all applicable performance and design criteria. The Subcontractor or Supplier performing the Design-Build Work shall retain appropriately licensed design professionals to provide all design services related to the Design-Build Work.
- 11.8.2 Scopes of Work that are being performed on a design-build or design-assist basis shall be fully designed during the Design and Procurement Phase and shall be fully coordinated and integrated with the Construction Documents that are submitted for permit or other governmental approvals. Unless otherwise agreed in writing by the Core Group, Architect shall be responsible for coordinating the design being provided by Architect and Architect's Consultants pursuant to the terms of this Agreement with the Design-Build Work, provided that the Architect is not responsible for the technical or professional adequacy of the Design-Build Work and the Architect's coordination services does not relieve the party responsible for the Design-Build Work from any of its obligations or liability for the technical or professional adequacy of the Design-Build Work.
- 11.8.3 Each Subcontractor, Supplier or design professional performing any design-related services for Design-Build Work shall maintain professional errors and omissions insurance in an amount not less than the limits set forth in Exhibit 5, or such other amount as may be specifically approved in writing by Owner, which insurance shall be maintained in effect for at least four (4) years after the Substantial Completion Date, provided however that if the Project has a Project Specific Insurance Policy for professional errors and omissions, such Subcontractor, Supplier or design professional performing design-related services shall be an insured under this policy.

11.9 Design Drawing or Modeling Standards. All design documents shall comply with any drawing or building information modeling standards reasonably required by the Core Group (including Computer-Aided Design) and each IPD Team Member shall require each of its subcontractors or consultants, in writing, to conform to such standards in the development of all Drawings and Specifications. Architect shall provide for the Core Group's review, comment and reasonable approval,

examples of the styles, methods and systems proposed to be used by Architect in the preparation of drawings and specifications to be included in the Construction Documents.

11.10 Value Analysis Strategy. Throughout the Design and Procurement Phase, with particular attention during the early stages of design, and as part of the Target Value Design process, the IPD Team Members shall continuously pursue opportunities to create additional value by identifying options to reduce capital or life cycle cost, improve constructability and functionality, or provide operational flexibility, while satisfying the Project requirements. In order to avoid waste associated with re-drawing aspects of the Work, the emphasis on deep value analysis and the opportunity for set-based design (carrying multiple reasonable/viable options for design concepts forward and deferring decisions until the last responsible moment, but in any case prior to design development) shall be employed early in the design process.

11.11 Value Engineering Analysis. IPD Team Members shall bring forward within the design clusters, alternative systems, means, methods, configurations, site locations, finishes, equipment and the like that satisfy the general design criteria of the Project, but which result in savings of time or money in designing, constructing or operating and maintaining the Project, or increasing quality, constructability, or other measures of value and which are cost neutral (each, a "**Value Engineering Proposal**" or "**VEP**"). Value Engineering Proposals shall be a primary focus of the Target Value Design clusters and shall be the basis of set-based design.

Each Value Engineering Proposal shall examine the proposed change, identify all aspects of the Project directly or indirectly affected by the change, specify the cost or time savings to be achieved if the VEP is accepted, and detail any anticipated effect on the Project's service life, economy of operation, ease of maintenance, appearance, design or safety standards. Each VEP shall be documented using an A-3 Report format that evaluates the proposal's specifics in relation to the value elements identified in the initial value identification report prepared as part of the Target Value Design process. Each Target Value Design cluster and the IPD Team shall initially review and consider whether to carry a VEP as a set during design. In case of disagreement concerning whether to carry a VEP, the Core Group shall determine which VEPs to pursue. For each VEP that is carried forward, the Responsible Designers shall ascertain design feasibility, satisfaction of the design concept, compatibility and compliance with Building Regulations, and professional standards of care.

11.12 Constructability. The IPD Team shall continually review the Construction Documents for clarity, consistency, constructability and coordination among the construction trades and collaborate with the other IPD Team Members in developing solutions to any identified issues. The purpose of the constructability reviews is to determine that the design is progressing in a manner that will result in complete, accurate and coordinated drawings which are sufficiently complete and coordinated for construction, and thereby reduce the risk of disruption, delay, change orders and potential claims. CM/GC, the Subcontractors and the Suppliers will focus on accuracy, completeness, sequencing and coordination. The constructability reviews will also seek out alternative construction materials, sequences, details, prefabrication opportunities, and systems that may result in a cost or time savings or increased quality. Nothing in this section shall relieve any IPD Team Member from its obligation to perform its services or work in accordance with the terms of its contract and the applicable standard of care.

11.13 Document Review. Throughout all Phases of the Project, the IPD Team shall carefully study and compare the Construction Documents with each other, with the report of the Joint Site Investigation, and any information furnished by Owner as provided elsewhere in the Contract Documents and shall immediately report to Architect and Owner in writing any errors, inconsistencies or omissions discovered. CM/GC, Subcontractors and Suppliers shall not perform any construction activity which involves an error, inconsistency or omission in the Contract Documents of which it had actual knowledge without providing such notice to Architect and Owner.

11.14 Review of EMP Proposal. At the direction of the Core Group, CM/GC shall oversee development of the EMP proposal and include a written statement of its assumptions. The EMP proposal shall be reviewed and approved by the Core Group. The EMP shall be subject to additions and deductions by changes in Owner's program, on the same basis under Article 24 as had those changes been issued during the Construction Phase.

11.15 Estimated Maximum Price Proposal. When the Core Group determines that the Drawings and Specifications are sufficiently complete, and CM/GC has completed procurement of sufficient Subcontractor and Supplier agreements, to permit accurate pricing of the Services and the Work, CM/GC, in collaboration with the IPD Team Members, shall propose an estimated maximum price for the Services and Work ("**Estimated Maximum Price**" or "**EMP**"), which shall comprise the following:

- 11.15.1 total cost to Owner of all elements of the Cost of the Work for the Project, including the total costs of professional services, labour, materials and supervision to be furnished by Architect and CM/GC during the Validation Phase, the Design and Procurement Phase, the Construction Phase and the Post-Construction Phase;
- 11.15.2 At-Risk Amounts;
- 11.15.3 General Conditions;
- 11.15.4 IPD Team Contingency; and
- 11.15.5 Allowances.

The EMP shall not include amounts for Owner's Retained Costs, Owner's Contingency or the costs of land, rights of way, financing or other items for which Owner is responsible.

11.16 General Conditions. The "**General Conditions**" shall include all general and administrative expenses for the Project, including foreseeable delays and interferences, which CM/GC may experience on the Project for the duration of the then current Project schedule. CM/GC will be entitled to use the IPD Team Contingency to augment the General Conditions unless the Core Group determines otherwise.

11.17 Weather Days. The EMP proposal shall include in its assumptions and clarifications the number of "weather days" that are included as an allowance in the proposed schedule and Amendment No. 1 shall specify the agreed number of weather days. Weather impacts will only constitute Excusable Delays to the extent they exceed the allowance in Amendment No. 1 and otherwise meet the criteria for an Excusable Delay.

11.18 Taxes Not Included. Any taxes on the Work or Services, other than PST paid directly by CM/GC, will be billed separately to the Owner and are not included in the Expected Cost, Target Cost or the EMP. Any refund of any taxes shall be paid to Owner.

11.19 Allowances. Items identified in the Contract Documents as being covered by Allowances shall be supplied for such amounts and by such persons or entities as the Core Group may direct. Unless otherwise provided in the Contract Documents:

- 11.19.1 Allowances shall cover the cost of materials and equipment delivered at the Site, less applicable trade discounts;
- 11.19.2 costs to be incurred by the Architect, CM/GC or the Architect's Consultants, for unloading and handling at the Site, labour, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the EMP, but not in the Allowances; and costs to be incurred by Subcontractors or Suppliers for unloading and handling at the Site, labour, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in their Subcontract Price and not in the Allowances;
- 11.19.3 whenever costs are more than or less than the applicable Allowance, the Allowable Cost, Expected Cost, Target Cost and EMP shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect:
 - (a) the difference between actual costs and the applicable allowance; and
 - (b) changes in IPD Team Member's costs under Section 11.19.1, but only to the extent caused by the change under Section 11.19.2; and
- 11.19.4 materials and equipment under an allowance shall be selected by Owner on or before the last responsible moment as established in the planning documents.

11.20 Documentation of EMP. CM/GC shall include with the EMP proposal a written statement of its basis, which shall include:

- 11.20.1 a list of the Drawings and Specifications, including all addenda, that were used in preparation of the EMP proposal and the estimation of the Owner's Retained Costs;
- 11.20.2 the total proposed EMP, including a statement of the estimated cost and a schedule of values organized by trade categories, self-performed work, and other items including the Fees of the Risk Pool IPD Team Members that comprise the total EMP, ;
- 11.20.3 a list of the clarifications and assumptions made by CM/GC in preparing the EMP proposal and the estimated Owner's Retained Costs to supplement the information contained in the Drawings and Specifications;
- 11.20.4 the Date of Commencement and the date of completion upon which the proposed EMP and the estimated Owner's Retained Costs are based and a schedule of the Construction Documents' issuance dates upon which the date of completion is based;
- 11.20.5 a list of Allowances and a statement of their basis; and
- 11.20.6 a detailed budget and breakdown of all General Conditions and jobsite management expenses included within the EMP proposal for the duration identified in the proposed Milestone Schedule.

11.21 Other Actions to Occur Prior to Submission of EMP Proposal.

- 11.21.1 Prior to submission of the EMP proposal to the Owner, the initial Core Group shall identify each of the material first-tier Subcontractors and Suppliers to be involved with the Project during the Construction Phase and establish the details of the optimal subcontracting format (including the forms of subcontract agreements) to be used with first-tier Subcontractors and Suppliers during the Construction Phase.
- 11.21.2 Prior to submission of the EMP proposal to the Owner, the Core Group shall develop a set of procedures and protocols ("**Payment Protocol**") to be followed by the Architect, Architect's Consultants, CM/GC, Subcontractors and Suppliers during the Construction Phase for the invoicing, processing and paying of payment requests under this Agreement in order to optimize the goals identified by the Core Group. Among other goals identified by the IPD Team, it is intended that the Payment Protocol shall ensure that the IPD Team is promptly paid during the Design and Procurement Phase and the Construction Phase to enable them to remain cash-neutral.
- 11.21.3 Prior to submission of the EMP proposal to the Owner, the Core Group shall establish a program for providing performance and completion assurances to Owner, potentially including subcontractor bonds and payment retention provisions for Subcontractors and Suppliers, completion insurance, and/or other similar programs. No payment or performance bonds will be required of the Risk Pool IPD Team Members.
- 11.21.4 Prior to submission of the EMP, the Core Group shall affirm that the Owner's budget for Owner's Retained Costs and the Owner's Contingency appear reasonable.

11.22 Owner's Options. If at any time the EMP exceeds the Allowable Cost (as they may be adjusted pursuant to the terms of this Agreement), the Owner shall:

- 11.22.1 increase the Allowable Cost, such that it exceeds the EMP;
- 11.22.2 work with the IPD Team to reduce the scope of the Project and cause the CM/GC to prepare a revised EMP proposal in accordance with Section 11.15; or
- 11.22.3 terminate this Agreement for Owner's convenience, in which case the provisions of Section 30.7 shall apply.

11.23 Amendment No. 1. If the EMP does not exceed the Allowable Cost, upon completion of each of the items set forth in Section 11.20, the following shall be set forth in or attached to Amendment No. 1:

- 11.23.1 the EMP and its basis;
- 11.23.2 the estimate of the Owner's Retained Costs and Owner's Contingency;
- 11.23.3 any Exhibits that have not yet been completed at the time of execution of this Agreement;
- 11.23.4 details of the Construction Documents developed during the Design and Procurement Phase through the date of the EMP proposal;
- 11.23.5 each of the deliverables required under Section 11.20.

11.24 Conditions Precedent to Commencement of the Construction Phase. Subject to Section 11.25, none of the IPD Team shall have any obligation to undertake work or other obligations to be performed during the Construction Phase unless and until each of the following conditions have been completed to the satisfaction of each Party: (i) execution of Amendment No. 1 by each Party; and (ii) the issuance by Owner of a Work Authorization directing the IPD Team to proceed with the Construction Phase. The IPD Team shall not incur any cost to be reimbursed as part of the Cost of the Work during the Construction Phase, except as Owner may specifically authorize in writing, prior to satisfaction of each of the conditions precedent set forth in the immediately preceding sentence.

11.25 Commencement of Construction Prior to Amendment No. 1. Notwithstanding Section 11.23 and 11.24, the Parties acknowledge that pursuant to a duly executed Work Authorization, the Construction Phase may be commenced prior to the execution of Amendment No. 1 and the satisfaction of all conditions precedent set forth in Section 11.24. If the Construction Phase is commenced prior to the agreement on and execution of Amendment No. 1 and/or the satisfaction of all conditions precedent set forth in Section 11.24, then the IPD Team Members shall not be bound by, obligated to perform or otherwise prejudiced by any other provision of this Agreement that is dependent upon execution of Amendment No. 1.

11.26 No Guarantee of Price. None of the Allowable Cost, the EMP or the estimate of Owner's Retained Costs or Owner's Contingency, is a guaranteed maximum price.

12. SUBCONTRACTORS, SUPPLIERS AND ARCHITECT'S CONSULTANTS

12.1 Subcontractors and Suppliers.

12.1.1 Subcontractors and Suppliers: CM/GC will contract with the Subcontractors and Suppliers to perform Work during the Validation Phase, the Design and the Procurement Phase, the Construction Phase and the Post Construction Phase, as described in this Agreement and applicable Work Authorizations. For these key trades, the Parties agree that unless otherwise determined by the Core Group, proposals will be solicited on a Request for Proposal basis in accordance with the advertising requirements described in the New West Partnership Trade Agreement, and that selections will be made in collaboration with the Core Group. CM/GC shall not be required to retain any Subcontractor or Supplier to whom it reasonably objects.

12.1.2 Default: The CM/GC shall retain the sole and exclusive right to implement its own policies and procedures in the management of all Subcontractors and Suppliers during the execution of their Work and retains the sole and exclusive right of determination, execution of and remedy of any Subcontractor or Supplier default. Without limiting the CM/GC rights in relation to the management of its Subcontractors or Suppliers, the CM/GC agrees that it shall, at all times, keep informed and consult with the Core Team regarding any Subcontractor or Supplier default and any proposed action to remedy such default.

12.1.3 Coordination Drawings. In addition to other preconstruction services outlined elsewhere in the Contract Documents, Subcontractors and Suppliers shall prepare and participate in developing "coordination drawings" or similar input into an electronic model during the Design and Procurement Phase to identify routing and eliminate conflicts among the work of the various trades. The "coordination drawings" or similar input shall be provided to

Architect, and necessary information shall be reflected and included in the Construction Documents that are submitted for permitting.

- 12.1.4 Continuing Responsibility: The Core Group's acceptance of any Subcontractor's or Supplier's credentials shall not in any way relieve the CM/GC of its duty, responsibility and liability to Owner for the Work provided by the CM/GC or any Subcontractor or Supplier. Subcontractors and Suppliers who have been accepted by the Core Group and retained by CM/GC are listed in the Project Roster. In addition to signing a Joining Agreement, Subcontractors and Suppliers within the Core Group shall, like those Subcontractors and Suppliers outside of the Core Group contract directly with CM/GC for all required work obligating the Subcontractors and Suppliers to comply with all requirements of the Contract Documents, and all fees and other charges of Subcontractors and Suppliers shall be a Cost of the Work, except for At-Risk Amounts for Risk Pool Subcontractors.

12.2 Design Consultants

- 12.2.1 Design Consultants: Architect and Owner may propose consultants to serve the Project as either Architect's Consultants or Owner's Consultants as those roles are described elsewhere in the Contract Documents. Consultant selection, unless otherwise determined by the Core Group, shall proceed on a Request for Proposal basis. Final selection shall be made by the Core Group. Before proposing any consultant, Architect shall satisfy itself that the consultant has the qualifications and experience to perform the services for which it has been proposed and, where the consultant is to become a Risk Pool IPD Team Member, a willingness to perform as a Risk Pool IPD Team Member. The Core Group will promptly review the qualifications and decide whether to add the proposed consultant to the pre-qualification list. The "pre-qualification" of proposed consultants shall not waive the right of the initial Core Group later to object to or reject any proposed consultant. If Architect intends to perform services in design disciplines other than architecture or engineering using its own staff, Architect shall provide the initial Core Group with its qualifications to perform those services. If requested by the initial Core Group, Architect shall obtain alternative proposals for alternative discipline work that is proposed to be self-performed. Upon request of the initial Core Group, a consultant's proposal shall include a fee proposal, supported by a RLWP. Architect shall not be required to retain any consultant to whom it reasonably objects.
- 12.2.2 Continuing Responsibility: The Core Group's acceptance of any Architect's Consultant's credentials shall not in any way relieve Architect of its duty, responsibility and liability to Owner for Services provided by Architect or any Architect's Consultants. Architect's Consultants who have been accepted by the Core Group and retained by Architect are listed in the Project Roster. In addition to signing a Joining Agreement, Architect's Consultants shall contract directly with Architect for all required services obligating the Architect's Consultants to comply with all requirements of the Contract Documents, and all fees and other charges of Architect's Consultants shall be a Cost of the Work, except for At-Risk Amounts for Risk Pool Consultants.
- 12.2.3 Replacement: The Core Group may direct Architect to replace any of Architect's Consultants or the employee(s) of any Architect's Consultants to whom the Core Group has reasonable objection. Provided the Architect's Consultant was not in default, Architect's compensation, the Allowable Cost, the Expected Cost, the Target Cost, the EMP and the Contract Time, shall be adjusted pursuant to an appropriate Change Order. The Core Group shall have the right to approve any replacement for an Architect's Consultant or employee(s), which approval shall not be unreasonably withheld or delayed.

12.3 Review of Agreement Form. Notwithstanding any provision of the preceding section, the proposed forms of subcontract(s) and consulting agreement(s), shall be submitted to the initial Core Group in electronic format, for review and comment. The final form must be consistent with

Lean Project Delivery principles and acceptable to the initial Core Group in all respects. Each such agreement shall, where the context so requires, contain provisions that:

- 12.3.1 require that such subcontracted work or services be provided in accordance with the requirements of the Contract Documents;
- 12.3.2 unless otherwise approved by the initial Core Team, each of Owner, Architect and CM/GC agrees to include a provision in their respective agreements with Non-IPD Team Risk Pool Members, Subcontractors and Suppliers, as the case may be, that limits the recovery of such Non-IPD Team Risk Pool Members, Subcontractors and Suppliers to direct damages only and precludes Non-IPD Team Risk Pool Members, Subcontractors and Suppliers from claiming any consequential, punitive, exemplary, special, indirect or incidental damages.
- 12.3.3 waive all rights the contracting parties may have against one another or that the Subcontractors, Suppliers or Architect's Consultants may have against the IPD Team Members for damages caused by fire or other perils covered by the insurance described in the Contract Documents to the extent provided in the Contract Documents;
- 12.3.4 require the Subcontractors, Suppliers and Architect's Consultants to carry and maintain insurance coverage in accordance with the Contract Documents and to file certificates of such coverage with the Core Group;
- 12.3.5 require submission of payment applications in a form approved by Owner, together with clearly defined invoices and billings supporting all such applications;
- 12.3.6 require that each Subcontractor, Supplier and Architect's Consultant continue to perform under its contract in the event a disagreement, dispute or claim exists, to the same extent required by this Agreement;
- 12.3.7 require that each Subcontractor, Supplier and Architect's Consultant only subcontract portions of its Work or Services to the extent approved by the Core Group and then only by way of a written subcontract or consulting agreement which complies with the requirements of this provision;
- 12.3.8 contain a right for the CM/GC and the Architect to terminate for convenience on terms similar to those provided in this Agreement; and
- 12.3.9 require each Subcontractor, Supplier and Architect's Consultant to make payments to its sub-subcontractors and sub-subconsultants within thirty (30) days of receiving payments from the CM/GC or Architect, as applicable.

12.4 Responsibility for Others. Subject to the limitations of liability set forth in Article 28 and the allocation of responsibility for correction of Deficient Work as set forth in Article 7 and correction of Nonconforming Work as set forth in Article 23, each Party is fully responsible for the acts and omissions of its respective subcontractors, and consultants, and persons either directly or indirectly employed by them, or under their control, as it would be for its own employees.

12.5 Third-Party Beneficiary. Nothing in the Contract Documents creates any contractual relationship between or among any Subcontractor, Supplier, Architect's Consultant or subcontractor of whatever tier and Owner, except that Owner shall be an express, intended third-party beneficiary of the performance obligations of Subcontractors, Suppliers, and Architect's Consultants. Specifically, any design or engineering services provided by or on behalf of any Architect's Consultant, in connection with any portion of the Project, are intended to benefit Owner and such party shall owe a professional duty of due care to Owner.

12.6 Information to Owner. CM/GC and Architect will provide copies of its subcontracts and any modifications thereto to the Owner upon request.

12.7 Owner's Rights. Owner reserves the right to perform design, construction or operations related to the Project (other than the Work or the Services) with Owner's own forces or through Owner's Consultants or Owner's separate contractors and any such design, construction or operations

shall be included as Owner's Retained Costs. Owner further reserves the right to award separate contracts in connection with other portions of the Project or other design, construction or operations, and the cost of such contracts shall be included as Owner's Retained Costs.. If Architect, an Architect's Consultant, CM/GC, a Subcontractor or a Supplier claims that delay or additional cost is involved because of such action by Owner or as a result of the act or omission of any of Owner's Consultants, Owner's Separate Contractors or Owner's employees, agents or representatives, it shall make such Claim as provided in this Agreement and if the Claim is allowed, the Allowable Cost, Expected Cost, Target Cost, EMP and the Contract Time shall be adjusted by appropriate Change Order.

12.8 Coordination. The Core Group shall provide for coordination of the activities of Owner's Consultants, Owner's Separate Contractors and Owner's employees, agents or representatives as it relates to the Project. Representatives of the Architect, Architect's Consultants, CM/GC, Subcontractors and Suppliers shall participate with Owner, Owner's Consultants, Owner's separate contractors and Owner's employees, agents and representatives in reviewing and coordinating their planning and schedules when requested to do so. The Parties shall cooperate in developing coordinated planning documents as provided in Section 12.1.4.

12.9 Cooperation. IPD Team Members shall afford Owner's Consultants, Owner and Owner's separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate construction and operations with theirs as required by the Contract Documents.

12.10 Quality Assurance. If part of the Work or Services depends, for proper execution or results, upon construction or operations by Owner's Consultants, Owner or Owner's separate contractor, all parties involved shall coordinate the conditions of satisfaction and hand-off criteria, and shall be jointly responsible for confirming that predecessor work meets the conditions of satisfaction. IPD Team Members shall, prior to proceeding with that portion of the Work or Services, promptly report to CM/GC or Architect, who shall report to the Core Group, observed discrepancies or defects in the work of Owner's Consultants or Owner's separate contractors.

12.11 Clean-up. If a dispute arises among CM/GC, Owner and any Owner's separate contractors as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, Owner may, after forty-eight (48) hours' written notice, clean up and allocate the cost among those responsible as Owner determines to be just, subject to further resolution pursuant to the dispute resolution provisions of Article 31.

E. CONSTRUCTION PHASE

13. PERMITS AND FEES AND GENERAL CONSTRUCTION PHASE REQUIREMENTS

13.1 Permits and Fees.

Unless otherwise provided in the Contract Documents, Owner shall secure and pay for the building permits and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Agreement and prior to commencement of construction, and which are legally required. CM/GC shall procure all certificates of inspection, use, occupancy, permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful operation of its business and prosecution of the Work, which charges and fees shall constitute a Cost of the Work.. Certificates of inspection, use and occupancy shall be delivered to Owner upon completion of the Work. CM/GC shall identify in the Construction Milestone Schedule when such licenses, permits, fees and inspections shall be necessary.

13.2 General Construction Phase Requirements.

The CM/GC shall comply with Exhibit 13 in the performance of the Work.

14. LEGAL NOTICES

14.1 Legal Notices. The IPD Team Members shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work and Services.

15. CONSTRUCTION ADMINISTRATION

15.1 Construction Administration. Architect will provide Construction Administration until Final Payment is due and, with Owner's concurrence, from time to time during the one (1)-year warranty period. Architect will have authority to act on behalf of Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of this Agreement.

15.2 Site Visits. Architect will visit the Site at intervals appropriate to the stage of construction to become familiar with the progress and quality of the Work and to determine if the Work is proceeding in general accordance with the design intent of the Construction Documents. However, Architect will not be required to make exhaustive or continuous on-Site inspections to check quality or quantity of the Work. On the basis of such on-Site observations as an architect, Architect shall prepare Site observation reports concerning the progress and quality of the Work, and promptly alert the Core Group to any observed non-conformance or condition that might, in Architect's professional opinion, adversely affect the Work or the EMP. Architect shall submit a written report to the Core Group within five (5) days after each Site visit.

15.3 On-Site Representative. Unless otherwise directed by the Core Group, Architect and CM/GC will each provide one or more on-Site project representatives to assist in carrying out their respective responsibilities at the Site during the Construction Phase. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in **Exhibit 9**.

15.4 Means and Methods. Architect will neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs, in connection with the Work, since these are solely CM/GC's, Subcontractor's and Supplier's responsibilities under the Contract Documents. Architect will neither have control over or charge of, nor be responsible for, acts or omissions of CM/GC, Subcontractors, Suppliers or their agents or employees, or of any other persons performing any portion of the Work. For clarity, this Section applies to all Phases of the Project.

15.5 [Not Used]

15.6 Construction Administration Fees. All costs and expenses incurred by Architect in connection with performance of the Construction Administration shall be treated as a Cost of the Work.

15.7 No Liability. Architect and Architect's Consultants will not be responsible for CM/GC's, Subcontractor's or Supplier's failure to perform the Work in accordance with the requirements of the Contract Documents.

Nothing in this Agreement shall make the Architect or CM/GC responsible or liable for performance or non-performance of any services or work of or any act or omission of any Owner's Consultant or Owner's separate contractor.

15.8 Management of Owner's Retained Costs.

Throughout the administration of this Agreement, the Core Group will review the Owner's Retained Costs and assist the Owner in identifying cost savings opportunities to maximize the value for the Project. Owner agrees to cooperate in good faith and to make information available to the Core Group to allow this review and management to occur.

16. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

16.1 Submittals. Submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which CM/GC, Subcontractor or Suppliers propose to conform to the information given and the design concept expressed in the Contract Documents; it is an effort to confirm a mutual understanding of the conditions of satisfaction. CM/GC, Subcontractors and Suppliers shall perform no portion of the Work for which the Contract Documents require delivery and review of Submittals until the respective Submittal has been reviewed by Architect. Review by Architect is subject to the limitations set forth in this Article. Informational submittals upon which Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned without action.

16.2 Submittal Review. The Core Group shall develop a Submittal review process that seeks to ensure that the goals described in Section 16.1 are achieved, that Submittals are reviewed only by the necessary parties, while minimizing the waste of the traditional submittal bureaucracy. The Submittal review process shall identify items for which traditional submittals may not be required, the potential for electronic submittals and the potential for direct submission from Subcontractors and Suppliers to Architect and the appropriate Architect's Consultants. Submittals shall be delivered at a time and in a sequence that conforms to the Milestone Schedule and the applicable Look Ahead Plan. By submitting a Submittal, the submitting party represents that it has determined and verified materials, field measurements and related field construction criteria, and has checked and coordinated the information contained within such Submittals with the applicable requirements of the Work and the Contract Documents.

16.3 Transmittal. Submittals shall be accompanied with a request that they be reviewed and returned by a date stated in the transmittal that is related to the ordering or fabrication of the material or equipment or a need to begin the work covered by the Submittal. The party designated to review the submittal shall discuss the date with the submitting party and make a reliable commitment concerning the date by which the Submittal will be returned. This commitment will be recorded and will be reflected in the Planning System.

16.4 Variation of Contract Documents. The Work shall be in accordance with approved Submittals, except that the CM/GC shall not be relieved of responsibility for deviations from requirements of the Contract Documents by approval of Submittals unless the Submittal and its transmittal has specifically identified the deviation in writing at the time of submittal and: (i) the deviation has been approved as a minor change in the Work; or (ii) a Change Order or Construction Change Directive has been issued authorizing the deviation. No review or acceptance shall relieve CM/GC, the Subcontractor or Supplier of responsibility for errors or omissions or for the professional or technical adequacy in their Submittals.

16.5 Certifications. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, Architect shall be entitled to rely upon the accuracy and completeness of such calculations and certifications furnished by an IPD Team Member

16.6 Review. Architect and Architect's Consultants will review or take other appropriate action upon Submittals for the purpose of determining whether such Submittals are in general conformance with the design concept of the Contract Documents. If a Submittal is rejected, the rejecting party shall discuss with the submitting party the reason for the rejection and describe the modifications required in order to gain acceptance, as well as returning the Submittal. Review of submittals is not conducted for the purpose of determining the accuracy or completeness of details such as dimensions and quantities, or for verifying instructions for installation or performance of equipment or systems, all of which remain the responsibility of the submitting party as required by the Contract Documents.

16.7 Re-Submittals. Any re-submittal shall direct specific attention, in writing, to revisions other than those requested in the response to previous Submittals. In the absence of such written notice, approval of a resubmission shall not apply to such revisions. However, when such revisions are accompanied by such written notice, approval of a resubmission shall constitute an approval of such revisions, but only for general conformance with the design concept of the Project and the information given in the Contract Documents. Review of such submittals is not conducted for the purpose

of determining the accuracy and completeness of details such as dimensions and quantities, or for verifying instructions for installation or performance of equipment or systems, all of which remain the responsibility of installing party as required by the Contract Documents.

16.8 Limitation on Review. Submittal review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences or procedures. Approval of a specific item shall not indicate approval of an entire assembly of which the item is a component, or of deviations from the Contract Documents not specifically identified in the transmittal accompanying the submittal.

17. REQUESTS FOR INFORMATION

17.1 Goal. The goal of integrating the Project delivery team and the preconstruction involvement of the IPD Team is to maximize the IPD Team Members' understanding of the design requirements, including the design intent and all technical requirements of the Project, prior to field construction. This process should minimize the need for requests for information or clarifications ("**RFIs**") during the Construction Phase.

17.2 Process. To the extent that RFIs are necessary, the party seeking clarification will first raise the issue with the applicable IPD Team Member, either in a face-to-face conversation or via telephone, in accordance with the applicable Communication Protocols. The initial conversation shall describe the issue, identify the area affected, and request the clarification needed. If the parties to that conversation are able to resolve the issue in the course of that conversation, they shall document the RFI response and report to the Core Group. If the parties to that conversation are not able to resolve the issue in the course of that conversation, they shall make commercially reasonable efforts to agree on how the RFI will be resolved (who, will do what, by when) and the requesting party shall notify the Core Group of the outstanding RFI and the plan to resolve it. To the extent that resolution of an RFI may affect progress of the Work, the issue shall be included in the Planning System.

17.3 Time Limits. If the requesting and responding parties are unable to reach agreement on the time for a response, they shall notify the Core Group, and a telephone call shall be scheduled within two (2) business days between the Core Group members and the requesting and responding parties to arrive at a mutually agreeable time period.

17.4 Basis. Interpretations and decisions of the responding party will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings.

18. DOCUMENTS AND SAMPLES AT THE SITE

18.1 Site Documents. The Communications Protocols shall specify who shall prepare and maintain on a current basis an accurate and complete set of Record Drawings and Annotated Specifications.

Copies of the Record Drawings and Annotated Specifications shall be available at the Site, and shall be updated as specified in the Communications Protocols and as directed by the Core Group to keep them current. The Record Drawings and Annotated Specifications shall be available for inspection by the IPD Team Members and any governmental or quasi-governmental authority with jurisdiction over the Work.

18.2 Final Record Set. Not later than the effective date of Amendment No. 1, the Core Group shall determine the Party responsible for preparation of the Record Drawings and Annotated Specifications ("**Record Drawing Party**"). At the time of its Final Payment Application, Record Drawing Party shall provide one (1) complete set of Record Drawings and Annotated Specifications to Architect, certifying them to be a complete and accurate reflection in all material respects of the actual construction conditions of the Work. Owner shall provide reproducible documents for Record Drawing Party's use in preparing the set of Record Drawings referred to above. At Owner's request, and at a price approved by the Core Group, Record Drawing Party shall provide the Record Drawings and Annotated Specifications in an electronic format specified by Owner, and the Allowable Cost, Expected Cost, Target Cost and the

EMP shall be adjusted, by appropriate Change Order. The Record Drawing Party shall be identified in Amendment No. 1.

18.3 Other Documents. CM/GC shall maintain one (1) record copy of all Change Orders, Construction Change Directives, approved Shop Drawings, Product Data, Samples and similar required Submittals, which have been prepared by CM/GC or of which CM/GC has been provided a copy, at the Site ("**Site Documents**"). These items shall be available for inspection by IPD Team Members and any governmental or quasi-governmental authority with jurisdiction over the Work. CM/GC shall provide to Owner a complete set of Site Documents, in good condition and certifying them to be complete and accurate in all material respects, at the time of its Final Payment Application.

19. HAZARDOUS MATERIALS

19.1 Hazardous Materials. CM/GC shall not cause any Hazardous Materials to be generated, released, disposed, discharged, or brought onto or stored at the Project Site or used in the construction of the Work, except for any material specified for incorporation into the Work or use in construction of the Work and commonly used construction materials. All such materials shall be handled in accordance with all manufacturer's guidelines, warnings and recommendations and in full compliance with all applicable federal, provincial and local laws, permits, rules and regulations. All notices required to be given with respect to such materials shall be given by CM/GC with a copy to Owner. All environmental permits and surveys required under applicable laws for construction of the Work shall be obtained and paid for by Owner. CM/GC shall not, except in compliance with applicable laws and permits, intentionally or accidentally release or dispose of Hazardous Materials at the Site or into the soil, drains, surface or ground water, or air, nor shall CM/GC allow any of its subcontractors or any other person for whose acts it is liable, to do so. Subject to the limits of liability set forth in Article 28, CM/GC shall indemnify, defend, protect and hold the other IPD Team Members and their respective employees harmless from all costs, expenses, claims, damages, penalties, judgments, liabilities and assessments (including environmental consultants' and attorneys' fees) arising from or in any way connected to any Hazardous Material (other than any pre-existing Hazardous Materials and Hazardous Materials to which Section **Error! Reference source not found.** applies, and any material specified for incorporation into the Work or use in construction of the Work, and commonly used construction materials) introduced, released, disposed, or discharged at or into the Site or into the soil, drains, surface or ground water, or air, but only to the extent the concentrations of such Hazardous Substances exceed permissible levels under applicable environmental laws and permits and only to the extent caused by or arising out of the negligent acts or omissions, fault or misconduct of CM/GC, or the negligent acts or omissions, fault or misconduct of anyone directly or indirectly employed by CM/GC or anyone for whose acts CM/GC may be liable.

Any cost or expense incurred in connection with the foregoing indemnity shall be treated as a Cost of the Work.

Under no circumstance shall CM/GC be responsible for any Hazardous Materials introduced, released, disposed, or discharged at or into the Site or into the soil, drains, surface or ground water, or air by any other person or entity, including another IPD Team Member or any of their respective subcontractors or any other person for whose acts they are liable.

19.2 Border Zone. Upon any IPD Team Member becoming aware of the presence of any Hazardous Materials in, on, migrating from, under or about the premises or of any occurrence or condition on any real property adjoining or in the vicinity of the premises, such IPD Team Member shall immediately notify Owner, the Architect and CM/GC in writing of same.

19.3 New Material. Upon the request of Owner, CM/GC shall take such steps at its own expense as are reasonably necessary to remove from the Site the Hazardous Materials or contamination brought onto the site by CM/GC, any of its Subcontractors or any person or entity under the direct or indirect control of any of them, to the extent the Hazardous Materials and contamination are not permitted under section 19.1.

19.4 Pre-Existing Material

In the event Hazardous Materials or contamination therefrom are found as an existing condition at the site or is brought on to the Site by Owner or a separate contractor of Owner or any contamination, spill or other condition requiring clean up, abatement or remediation caused by any act or omission of Company or its employees, agents or separate contractor ("Owner Hazardous Materials"), Owner shall be responsible for all such Owner Hazardous Materials and conditions. CM/GC may coordinate any necessary abatement efforts of Owner at Owner's request. However, Owner shall contract directly with licensed and qualified entities to perform all necessary abatement work.

19.5 Discovery .

This subparagraph shall not apply to Hazardous Materials brought onto the Site by CM/GC or any of its Subcontractors. In the event Owner Hazardous Materials or contamination therefrom are encountered on the site, CM/GC shall notify Owner and Architect immediately after CM/GC has actual knowledge of such discovery and the Parties shall temporarily suspend performance of the Work on the portion of the Project affected by the Owner Hazardous Materials or contamination as reasonably determined by CM/GC or as directed by Owner or Architect. Promptly after receipt of notice, the Core Group shall meet and attempt to agree upon whether the Work or any part thereof can proceed, and if so, under what terms and conditions. If, after making reasonable commercial efforts to agree, the Core Group is unable to agree upon any such matters, CM/GC may require by written notice to Owner that Owner remove all such Owner Hazardous Materials and contamination from the Site. Any resulting delay shall constitute a Compensable Delay and the Contract Time, and the Allowable Cost, Expected Cost, Target Cost and EMP shall be adjusted by appropriate Change Order. If Owner does not cause such Owner Hazardous Materials to be removed from the Site within sixty (60) days of the notice from CM/GC, then CM/GC may terminate this Agreement by providing written notice of such intent to terminate to Owner. This Agreement shall be terminated fifteen (15) days following the giving of such notice of intent to terminate, provided the Owner Hazardous Materials have not then been removed. In the event of such termination, Owner shall pay to each of the Architect and CM/GC the amounts that would be due to them pursuant to Section 30.12. Notwithstanding any other term or provision of the Contract Documents, Owner agrees to release, indemnify, hold harmless, protect and defend CM/GC and the Architect from and against any and all costs, expenses, claims, liability, fines, penalties, assessments, response costs, damages or judgments, associated with the presence, discharge, release or escape of Owner Hazardous Materials or contamination; provided, however, that the provisions of this sentence shall be inapplicable to any Hazardous Materials brought onto the Site by CM/GC or any of its subcontractors or any person or entity under the direct or indirect control of any of them.

20. SCHEDULE AND DELAY

20.1 Contract Time. The "**Contract Time**" is the period of time allotted in Amendment No. 1, as increased by adjustments authorized or required hereunder, to achieve Final Completion of the Work. The Contract Time shall have no applicability to any Phase other than the Construction Phase.

20.2 Date of Commencement. The "**Date of Commencement**" for any portion of the Work is the date established in the Work Authorization for such portion of the Work. CM/GC shall not knowingly, except by agreement or instruction of Owner in writing, prematurely commence operations on the Site or elsewhere prior to the effective date of insurance required by this Agreement to be furnished by CM/GC. The Date of Commencement of the Work shall not be changed by the effective date of such insurance.

20.3 Substantial Completion. The "**Substantial Completion Date**" is the date certified by the Architect in accordance with Article 22.

20.4 General. CM/GC shall proceed expeditiously with adequate forces and shall achieve Substantial and Final Completion of the Work within the Contract Time.

20.5 Substantial & Final Completion. CM/GC shall achieve Final Completion of the Work prior to expiration of the Contract Time and within the number of days after Substantial Completion established by the Core Group in accordance with Amendment No. 1, as such dates may be extended

pursuant to the terms of this Agreement. To the extent Substantial Completion or Final Completion is delayed as a result of:

20.5.1 a governmental agency's refusal to accept the Project and the refusal is not caused by CM/GC's performance or failure to perform the Work or to satisfy its obligations under the Contract Documents, such delay shall be deemed an Excusable Delay and the Contract Time shall be extended, by appropriate Change Order; and

20.5.2 the performance, or failure to perform, of Owner, Owner's separate contractor or an Owner's Consultant, such delay shall be deemed a Compensable Delay and the Allowable Cost, Expected Cost, Target Cost and the EMP shall be adjusted and the Contract Time shall be extended, by appropriate Change Order.

20.6 Delays. Whenever it becomes apparent that the Substantial Completion or Final Completion may extend beyond the Contract Time, as adjusted pursuant to this Agreement, CM/GC shall initiate collaborative efforts with the IPD Team to replan the Work in order to achieve Substantial and Final Completion within the Contract Time. CM/GC shall prepare and submit the IPD Team's revised plan, including an updated schedule describing how the IPD Team intends to recover so as to complete the Work within the Contract Time, as adjusted pursuant to this Agreement, within the time requested by the Core Group.

20.7 Time Extensions. If, at any time, the commencement or progress of the Services or Work is delayed by an "**Excusable Delay**" or "**Compensable Delay**" as defined below and the Delayed Party complies with the requirements of this Article, the Contract Time shall be extended. If the delay is a Compensable Delay, the Allowable Cost, the Expected Cost, the Target Cost, the EMP and the Contract Time shall be adjusted by appropriate Change Order.

20.8 Excusable Delay. "**Excusable Delay**" means any delay in performance of the Work or the Services or any delay in Substantial Completion or Final Completion of the Work caused by any conditions or events beyond the reasonable control and without the fault or negligence of the Architect or the CM/GC, including, acts of God, strikes, unavailability of labour or supplies, embargoes, casualties, unusual delays in transportation, and national emergency, which were not and could not in the exercise of reasonable diligence have been avoided by the Architect or CM/GC. If a delay occurs that would otherwise be an Excusable Delay but for the existence of schedule float when the delay occurs, the Core Group shall assess whether to grant a time extension based upon the cause of other delays which ultimately contribute to any delay in Project completion beyond the Contract Time. An Excusable Delay may also be due to adverse weather, provided the Architect or CM/GC, as applicable, satisfies the provisions of this Article. The financial inability of a party and its default, shall not be deemed conditions beyond the party's control. An Excusable Delay will result in an extension of the Contract Time, in accordance with this Section, but shall not result in any adjustment of the Allowable Cost, Expected Cost, Target Cost or the EMP.

20.9 Compensable Delay. "**Compensable Delay**" means any delay in performance of the Work or the Services or any delay in Substantial Completion or Final Completion of the Work, to the extent caused by: (i) the acts or omissions of Owner, Owner's Separate Contractors, Owner's Consultants, including their subcontractors and subconsultants, or Owner's employees, agents or representatives; or (ii) issuance of Change Orders or directions to suspend the Work not attributable to the fault or neglect of the Architect or the CM/GC. Provided that the Architect or the CM/GC, as applicable, complies with the requirements of Article 20, a Compensable Delay shall result in the Allowable Cost, the Expected Cost, the Target Cost, the EMP and the Contract Time being adjusted by appropriate Change Order.

20.10 Inexcusable Delay. "**Inexcusable Delay**" means any delay in Substantial Completion or Final Completion of the Work resulting from causes other than those which are excusable or compensable pursuant to Section 20.9 and 20.10. An Inexcusable Delay shall not entitle the Architect or the CM/GC to an extension of the Contract Time or any adjustment of the Allowable Cost, the Expected Cost, the Target Cost or the EMP.

20.11 Concurrency. The Architect and the CM/GC may make claims for an extension of the Contract Time, for an Excusable Delay or a Compensable Delay subject to the following:

20.11.1 if an Excusable Delay and a Compensable Delay occur concurrently, the delay shall be treated as a Compensable Delay and the maximum extension of the Contract Time shall be the number of days from the commencement of the first delay to the cessation of the delay which ends last; or

20.11.2 if an Inexcusable Delay occurs concurrently with either an Excusable Delay and/or a Compensable Delay there shall be an extension of the Contract Time only for the period the delays are concurrent but there shall not be an adjustment in the Allowable Cost, the Expected Cost, the Target Cost or the EMP. In the event of concurrent delay, the limitation of this Section shall only apply during the concurrent period; once the concurrent delay ends, Section 20.8, 20.9 or 20.10, as applicable, shall apply. Delays in the prosecution of parts or classes of the Work which do not prevent or delay Substantial or Final Completion of the whole Work within the Contract Time are not to be considered Excusable or Compensable.

20.12 No Waiver. No extension of time granted pursuant to this Article shall constitute a waiver by Owner, or a release of the Architect or the CM/GC, as applicable, from its obligations to perform the Services or Work, as applicable, in the time specified by the Contract Documents, except as modified by the particular extension in question. Except where required by this Agreement, granting of a time extension due to one circumstance on one request shall not guarantee an extension of time for any other circumstance or the same circumstance occurring at some other time, and shall not be viewed as a precedent for any other request for extension.

20.13 Notice of Potential Claim. If either the Architect or the CM/GC contemplates making a Claim for an increase in the Contract Time, such party shall give written notice of such Claim as provided in Article 31 (each, a "**Notice of Potential Claim**"). The Notice of Potential Claim shall include an estimate of cost and probable effect of the delay on progress of the Work and the Services. Claims for extension of time shall include written justification as required by this Agreement, as well as sufficient extraction and analysis of the Project schedule included in Amendment No. 1 as may be required to verify the claimed effect on completion. Approved changes in the Contract Time shall be incorporated by Change Order. Only delay impacting the critical path of the Work or the Services shall be considered when determining if a party is entitled to additional time.

20.14 Adverse Weather. If, at any time, the progress of the Work is delayed by adverse weather, or the impact of weather on conditions of the Site, then the Contract Time shall be extended only for those delays which meet the following test:

20.14.1 the Work at the Site which was delayed must have involved an activity on the critical path of the most recently approved Construction Schedule; and the adverse weather must have prevented at least twenty-five percent (25%) of the normal labour and equipment force for the critical path activity from proceeding with its work in a reasonable manner; the adverse weather must have prevented the normal labour and equipment force for the critical path activity from working at least five (5) hours of a normal eight (8) hour day; and the adverse weather or impacts at the site exceed the allowance as set forth in the Construction Schedule.

20.15 Daily Weather Documentation. All adverse weather conditions shall be documented daily and confirmed by the Owner's Representative, or other person designated by Owner, whether they are within the allowance or will form the basis of a Claim for an extension of the Contract Time. A summary of weather impacts shall be submitted to the Core Group at least monthly, together with the schedule update. A copy of the Owner-approved daily log shall be submitted as part of the required documentation for a Claim requesting such an extension of the Contract Time. That documentation shall include crew size, current work activities, equipment, on-site weather conditions, updated schedule, and other relevant information documenting the delay due to adverse weather.

21. DIFFERING SITE CONDITIONS

21.1 Concealed or Unknown Conditions. If:

- 21.1.1 conditions are encountered at the Site that are: (i) subsurface or otherwise concealed physical conditions, which differ materially from those indicated in the Contract Documents; or (ii) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents;
- 21.1.2 Heritage Property (as defined by applicable law) is discovered on the Site; or
- 21.1.3 information contained in a document provided by the Owner, and upon which Architect, an Architect's Consultant, CM/GC or a Subcontractor or Supplier has placed reliance in accordance with Section 6.3, is discovered to be inaccurate,

(such conditions collectively, "**Differing Site Conditions**"),

then notice by the observing IPD Team Member shall be given to the other IPD Team Members promptly before conditions are disturbed and in no event later than ten (10) days after first observance of the conditions.

21.2 Core Group Investigation. Upon receipt of notice of a Differing Site Condition from an IPD Team Member, the Core Group will promptly investigate such conditions and, if the conditions are determined to: (i) constitute Differing Site Conditions; and (ii) cause an increase or decrease in the cost of, or time required for, performance of any part of the Work or the Services, the Core Group will make reasonable commercial efforts to agree upon an equitable adjustment in the Allowable Cost, Expected Cost, Target Cost and EMP or Contract Time, or both. If the Core Group is unable to agree upon the terms of an equitable adjustment in the Allowable Cost, Expected Cost, Target Cost and EMP or Contract Time, or both, within a reasonable time, or if the Core Group determines that the conditions at the site are not Differing Site Conditions and that no change in the terms of this Agreement is justified, the Core Group will notify the notifying party in writing, stating the reasons. If after receiving the response, the notifying party still intends to pursue a Claim, it shall provide written notice within ten (10) days after it has received the decision.

21.3 Exclusion. Conditions will not be qualified as concealed or unknown if they were readily visible or readily accessible in performance of the Joint Site Investigation.

21.4 Claim Submission. In addition to the information required for other Claims, a Differing Site Condition Claim shall include the following information:

21.4.1 a description of the unknown or concealed condition; how the condition differs materially from those indicated or anticipated in the Contract Documents; and an estimate of any change in the scope of the Work or Services required as a result of the condition, which estimate shall be based upon exploratory excavation, system trace out or other means immediately available (any costs incurred in connection with such estimate shall form part of the Change Order).

22. SUBSTANTIAL & FINAL COMPLETION

22.1 Defined. "**Substantial Completion**" is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so Owner can occupy or utilize the Work for its intended use, and only minor corrective Work remains to be performed, all required approvals, certificates of occupancy and other sign-off from any public agencies with jurisdiction have been obtained (except where such approvals are delayed as a result of causes unrelated to IPD Team Members' performance or failure to perform the Work or to satisfy their obligations under the Contract Documents), and CM/GC has cleaned up and removed all of its equipment, tools and other materials from the Work area. CM/GC shall secure and deliver to Owner written warranties and guaranties from the Subcontractors and Suppliers bearing the Substantial Completion Date or some other date as may be agreed to by Owner and stating the period of warranty as required by the Contract Documents.

22.2 Notice. At a date established by the Core Group, and in accordance with the Built-In Quality Plan described in Section 7.4, the IPD Team shall develop a phase plan that addresses

completion, commissioning, and close-out. The plan shall include a process for assuring that the Project, at the date of Substantial Completion, will satisfy the conditions of satisfaction established in the Contract Documents, without relying on a traditional "punch list process." If according to that plan, Owner will take beneficial occupancy of all or any portion of the Project prior to Final Completion, CM/GC shall prepare and submit to the Core Group a comprehensive list of items to be completed or corrected after Substantial Completion and before Final Completion ("**Final Completion List**"). Failure to include an item on the Final Completion List does not alter the responsibility of CM/GC to complete the Work in accordance with the Contract Documents. When CM/GC believes that the Work, of a portion which Owner agrees to accept separately, is Substantially Complete, it shall notify the Core Group, in writing.

22.3 Inspection. Upon receipt of the notice pursuant to Section 22.2 prepared by CM/GC, the Core Group will promptly make an inspection to determine whether the Work or designated portion thereof is Substantially Complete. If the inspection discloses any item, whether or not included in any Final Completion List, which indicates that Substantial Completion has not been achieved, the Core Group, not later than five (5) days following the inspection shall schedule a Core Group meeting and deliver to CM/GC a written list indicating the elements of the Work which are not Substantially Complete. CM/GC shall, before submitting another request for an inspection to determine Substantial Completion, complete or correct, or make reasonable commercial efforts to cause the applicable Subcontractor or Supplier to complete or correct, each such item. When Substantial Completion is achieved, it shall be acknowledged by the Core Group and Architect will issue a Certificate of Substantial Completion which shall establish the Substantial Completion Date, responsibilities of IPD Team Members for security, maintenance, heat, utilities, damage to the Work and insurance, and shall identify the agreed-upon time for completion of any items on the Final Completion List which cannot be completed prior to the date scheduled for Final Completion. The Core Group shall establish the amount of the Warranty Reserve at the time of Substantial Completion and warranties and guaranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Contract Documents and the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the IPD Team Members for their written acceptance of responsibilities assigned to them in such certificate.

22.4 Partial Occupancy or Use. Owner may occupy or use any completed or partially completed portion of the Work at any stage, provided that: (i) such occupancy or use is authorized by public authorities having jurisdiction over the Work; (ii) does not hinder the timely completion of the Work; and (iii) the IPD Team Members have agreed in writing on the responsibilities assigned to each of them for security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. Such partial occupancy or use may commence whether or not the portion is Substantially Complete. Immediately prior to such partial occupancy or use, the IPD Team Members shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work. Unless otherwise agreed upon, partial occupancy or use of any portion of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

22.5 Use of HVAC System. CM/GC and the Subcontractors may use portions of the new heating, cooling, or ventilation systems to provide temporary heat, cooling or ventilation prior to Substantial Completion. Any systems so used shall be provided with temporary filters and the systems shall be cleaned and restored to the condition required by this Agreement and new filters shall be installed prior to Substantial Completion. Such use shall not operate to commence the contractually required warranties.

22.6 Final Completion. Upon receipt of written notice from CM/GC that the Work is ready for final inspection and acceptance, the Core Group will promptly make such inspection. Based upon its review and finding that the Work is in general compliance with the Contract Documents and this Agreement, including completion of all items noted at Substantial Completion on the Final Completion List, Architect will promptly issue, and Owner will countersign a Certificate of Final Completion accepting the Project as completed in general accordance with terms and conditions of the Contract Documents ("**Final Completion**"). For clarity, the Certificate of Final Completion does not relieve the CM/GC of its obligations and responsibilities with respect to the Work.

F. POST-CONSTRUCTION PHASE

23. POST CONSTRUCTION PHASE

23.1 Basic Warranty.

CM/GC warrants to Owner that the Work will be: (i) new, unless otherwise required or permitted by the Contract Documents; (ii) of the quality required by the Contract Documents; (iii) free from defects not inherent in the quality required or permitted by the Contract Documents; and (iv) otherwise conform to the requirements of the Contract Documents. Subject to the Limits of Liability set forth in Article 28, the CM/GC is responsible for warranty of all Work, whether performed by it or by its Subcontractors or Suppliers. The forgoing warranty also applies to any and all products or procedures specified in the Contract Documents.

Subject to the Limits of Liability set forth in Article 28, Architect warrants to Owner that the Services will be performed in accordance with the Standard of Care described in Section 7.1.

The warranties given in this Agreement exclude damage or defect caused by abuse, modifications not designed and executed by CM/GC or its Subcontractors or Architect and Architect's Consultant, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage.

Work or Services not conforming to these requirements, including substitutions not properly approved and authorized, shall be considered nonconforming or defective (the "**Nonconforming Work**").

23.2 Determination of Possible Insurance Coverage.

The Architect or CM/GC, as the case may be, shall advise the Owner if the Nonconforming Work may be insured under any Project Specific Insurance Policy and of a course of action for rectifying the Nonconforming Work while the insurance claim is pursued. The Architect and CM/GC each agree to take reasonable steps to assist the Owner in pursuing any such insurance claim and to take all necessary actions as may be required under any Project Specific Insurance Policy for such purpose and any cost associated therewith shall be considered a Cost of the Work..

23.3 Correction of Non-Conforming Work within One Year of Substantial Completion.

If, within one (1) year of Substantial Completion, the Owner discovers Work or Services that do not comply with the warranty provided pursuant to Section 23.1, Owner shall provide written notice to CM/GC or Architect as the case may be and CM/GC or Architect shall promptly investigate the condition and advise the Owner concerning the proposed remedial course of action as outlined below:

- 23.3.1 23.3.1 Non-Conforming Work By Subcontractors, Suppliers and Non-IPD Risk Pool Consultants. Subcontractors, Suppliers and Non-IPD Risk Pool Consultants will provide industry standard warranties with respect to their Work and/or Services and perform any warranty repairs without cost to Owner. The CM/GC or Architect, as applicable, shall take appropriate action to cause such Subcontractors, Suppliers or Architect's Consultants to perform necessary warranty work. In the event CM/GC or Architect is unable to enforce the warranty obligations of such Subcontractor, Supplier or Architect's Consultant, the matter will be referred to the Core Group for action and any costs incurred by the CM/GC, Architect or Risk Pool Consultants to enforce or perform such warranty obligations will be funded from the Warranty Reserve. In the event that there is insufficient funds in the Warranty Reserve to cover the costs incurred by the CM/GC, Architect and Risk Pool Consultants to enforce or perform such warranty obligations, the CM/GC and/or Architect, where applicable, agree to assist the Owner in taking all necessary action to assist the Owner in recovering its excess cost from Project Specific Insurance Policy on the understanding that where any such costs are not recoverable from the Project Specific Insurance Policy, the Owner remains responsible for reimbursing such costs as a Cost of Work.

If Owner's operations or use are impaired by the Nonconforming Work or its correction, the applicable Subcontractor, Supplier or Non-IPD Risk Pool Consultant, as the case may be, shall use such off-hours labour and timesaving procedures as Owner may reasonably request.

Owner shall reimburse CM/GC, Architect and Risk Pool Consultants, as a Cost of the Work, for all costs incurred by the CM/GC, Architect and Risk Pool Consultants in connection with the correction of Nonconforming Work caused by Non-IPD Risk Pool Consultant or Subcontractors or Suppliers, including, without limitation, all costs of correction, testing and inspection.

23.3.2 23.3.2 Non-Conforming Work By CM/GC, Architect or Risk Pool Consultants. If Work or Services performed directly by CM/GC, Architect or a Risk Pool Consultant are found to be Nonconforming Work, CM/GC, Architect or the applicable Risk Pool Consultant shall prosecute and complete any necessary corrections within the shortest time reasonably practicable.

If Owner's operations or use are impaired by such Nonconforming Work or its correction, CM/GC, Architect or the Risk Pool Consultant, as the case may be, shall use such off-hours labour and timesaving procedures as Owner may reasonably request.

Owner shall reimburse CM/GC, Architect and Risk Pool Consultants for all costs arising out of correction of Nonconforming Work caused by them, including, without limitation, all costs of correction, testing and inspection, as a Cost of the Work, provided however, Owner shall have no obligation to reimburse any party for its Fraud or Willful Misconduct. These costs for warranty repairs performed directly by CM/GC, Architect and Risk Pool Consultants will be charged to the Warranty Reserve established by the initial Core Group at Substantial Completion. If the Warranty Reserve is exhausted, and subject to any recovery from Project Specific Insurance Policy, the Core Group within thirty (30) days of the first anniversary of Substantial Completion shall determine the costs in excess of the Warranty Reserve that have been paid or will be paid by the Owner for warranty work corrected pursuant to this Section 23.3.2 before the end of the first anniversary of Substantial Completion (the "Excess Warranty Costs"). Subject to Article 28, the Excess Warranty Costs shall be reimbursed by the Risk Pool IPD Team Members and the Owner will invoice such parties for their respective portions of the Excess Warranty Costs within thirty (30) days after the Excess Warranty Costs are determined and the Risk Pool IPD Team Members will make payment to the Owner within fifteen (15) days of receipt of invoice.

If a Risk Pool IPD Team Member fails to make timely payments to Owner as required under this Section 23.3.2, the Owner may pursue the delinquent Risk Pool IPD Team Member directly and shall be entitled to recover its attorney's fees and other costs of collection from the delinquent Risk Pool IPD Team Member along with the amount due and interest from the date the payment was due.

If the At-Risk Amounts have been exhausted prior to Final Completion, any costs of correcting Nonconforming Work that was originally performed by CM/GC, Architect or a Risk Pool Consultant shall be paid by Owner as a Cost of Work and the Owner shall be entitled to any insurance recovered for the costs of correction.

23.4 Latent Defects.

The obligations with respect to a Latent Defect that is discovered after the one-year anniversary of Substantial Completion are as set out in this Section 23.4.

A "**Latent Defect**" is Nonconforming Work that (i) could not have been, with the exercise of reasonable diligence, discovered prior to the expiration of one year from the date of Substantial Completion; and (ii) was not caused by abuse, modifications not designed and executed directly by a CM/GC, a

Subcontractor, a Supplier, Architect or an Architect's Consultant, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage

- 23.4.1 23.4.1 Latent Defects Arising From Work or Services Performed By Subcontractors, Suppliers and Non-IPD Risk Pool Consultants. To the extent a Latent Defect arises from Work or Services provided or performed by a Subcontractor, Supplier or a Non-IPD Risk Pool Consultant, such party shall be responsible for correction of the Latent Defect at its sole cost. In the event that such party fails to correct such Latent Defect, the loss, costs and damages arising from such Latent Defect shall be pursued as a claim against any available Project Specific Insurance Policy or other insurance maintained by such party. To the extent such insurance does not cover the loss, costs and damages arising from such Latent Defect, the Subcontractor, Supplier or a Non-IPD Risk Pool Consultant remains solely liable for such loss, costs and damages.
- 23.4.2 23.4.2 Latent Defects Arising From Work or Services Performed By CM/GC, Architect and Risk Pool Consultants. To the extent a Latent Defect arises from Work or Services provided or performed directly by CM/GC, Architect or a Risk Pool Consultant, such party shall be responsible for the correction of such Latent Defect in accordance with this Section and subject to the Limitation of Liability set forth in Article 28. The Owner and the CM/GC or Architect, as the case may be, shall pursue a claim against any available Project Specific Insurance Policy for the loss, costs or damages arising from such Latent Defect as set forth in Article 28. To the extent any recovery from such Project Specific Insurance Policy does not satisfy the proven loss, costs or damages sustained by Owner arising from such Latent Defect, each Risk Pool IPD Team Member remains liable to the Owner as set forth in and limited by Article 28.

With respect to claims for Latent Defects, the Owner shall require Owner's property insurer to waive any subrogation rights against all Risk Pool IPD Team Members.

23.5 Extension.

The period for correction of Work and Services performed after Substantial Completion set out in Section 23.3 shall be extended with respect to portions of Work and Services performed by the period of time between Substantial Completion and actual completion of the Work or Services in question.

G. COMMERCIAL TERMS

24. CHANGES

24.1 General. Adjustments to the Allowable Cost, Expected Cost, Target Cost, EMP or the Contract Time on account of changes in the Work or Services shall be determined as provided in this Article 24. Adjustments to the Architect's Consultants', the Subcontractors' and the Suppliers' contracts shall be in accordance with Sections 25.2 and 25.4.

24.2 Process. Changes in the Work or Services may be accomplished after execution of the Agreement, and without invalidating the Agreement, by Change Order, Construction Change Directive or order for a minor change in the Work or Services, subject to the limitations stated in this Article 24 and elsewhere in the Contract Documents. Changes in the Work or Services shall be performed under applicable provisions of the Contract Documents, and the applicable IPD Team Member shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work or Services. No change in the Work or Services shall be the basis of adjustment to the Allowable Cost, Expected Cost, Target Cost, EMP or the Contract Time unless and until authorized by a Change Order, Construction Change Directive or Change Proposal Request executed and issued in accordance and in strict compliance with the requirements of the Contract Documents

24.3 Changes. No increase in the Allowable Cost, Expected Cost, the Target Cost or the EMP will be made for Services or Work that either the Architect or the CM/GC claims as a change (the "**Claiming Party**") unless the Claiming Party establishes that the additional cost is the result of one of the following:

- 24.3.1 a change in the scope of Work or Services or the method or manner of performance directed or authorized by Owner;
- 24.3.2 changes in laws or regulations affecting the Project, enacted or promulgated after the execution of this Agreement or a change required by regulatory authorities (including inspections) that was not reasonably ascertainable from the Contract Documents and not reasonably inferable from the Claiming Party's actual knowledge of local practices (including a change in the regulatory authority's interpretation of laws or regulations);
- 24.3.3 Differing Site Conditions;
- 24.3.4 Compensable Delays, including delays authorized by Owner pending resolution of a dispute;
- 24.3.5 any acts or omissions of Owner, Owner's employees, Owner's representatives, Owner's agents, Owner's Consultants or Owner's separate contractors that disturb, disrupt or interfere with the Claiming Party's performance of the Services or Work or that otherwise increase the costs of, or time required for, the performance of the Services or Work, where such additional cost or time is not described elsewhere in this Section 24.3;
- 24.3.6 damage to the Work caused by fire or other reasonably unavoidable casualties that are not the fault of the Architect or the CM/GC;
- 24.3.7 changes to the Owner's contracts with Owner's separate contractors or Owner's Consultants that increase the costs of, or time required for the Claiming Party's performance of the Work or Services;
- 24.3.8 any force majeure event;
- 24.3.9 failure or delay of Owner to provide or cause to be provided any information or other items required in accordance with the Agreement;
- 24.3.10 an extraordinary escalation in the cost of labour or materials that could not have reasonably been foreseen by the Parties at the time of execution of this Agreement;
- 24.3.11 any other circumstance which is expressly identified in the Contract Documents as entitling a Change Order; or
- 24.3.12 adverse impact resulting from the Owner's decision, or delay in making a decision, with respect to the CM/GC's notification under Section 7.14.

24.4 Change Order. A "Change Order" is a written order to the Architect, an Architect's Consultant, the CM/GC, a Subcontractor, or a Supplier, as the case may be, signed by the Owner, the Architect and the CM/GC, issued after the execution of this Agreement, authorizing the recipient of such Change Order to a Change in the Work, the Services or the method or manner of performance and an adjustment to the Allowable Cost, Expected Cost, the Target Cost, the EMP and/or the Contract Time and shall reflect agreement between the Owner, Architect and the CM/GC with respect to such changes.

24.5 Effect of a Change Order. Agreement on any Change Order shall constitute a final settlement of all matters related thereto, including but not limited to, all direct and indirect costs associated with such change and all adjustments to the Allowable Cost, Expected Cost, the Target Cost, the EMP or the Contract Time; provided, however, that this Section 24.5 shall have no application and neither the Architect nor the CM/GC shall proceed with any Change Order in the case of any change in the Work or Services that, together with all prior changes in the Work and Services, would in the reasonable opinion of the Core Group or the Architect or CM/GC, cause the Actual Cost to exceed the

Expected Cost by more than ten percent (10%). This requirement is of the essence to the Contract Documents.

24.6 Construction Change Directive.

24.6.1 Construction Change Directive. A "**Construction Change Directive**" is a written order to the Architect or the CM/GC signed by Owner, directing a change in the Work or Services prior to agreement on adjustment, if any, in the Allowable Cost, Expected Cost, the Target Cost, the EMP and the Contract Time, and shall be used in the absence of agreement to its terms by the Architect or the CM/GC, as applicable. Owner may by Construction Change Directive, without invalidating this Agreement, order changes in the Work or the Services within the general scope of the plans and specifications adopted pursuant to Amendment No. 1 consisting of additions, deletions or other revisions, provided that the Allowable Cost, Expected Cost, the Target Cost, the EMP and the Contract Time are adjusted accordingly.

24.6.2 Response to Construction Change Directive. Upon receipt of a Construction Change Directive, the receiving party shall promptly proceed with the indicated change as a Cost of the Work and advise the Core Group of its agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment of the Allowable Cost, Expected Cost, the Target Cost, the EMP or the Contract Time. A Construction Change Directive signed by the Owner, Architect and the CM/GC indicates their agreement therewith, including adjustment of the Allowable Cost, Expected Cost, the Target Cost, the EMP and the Contract Time or the method for determining them. Agreement by the parties shall be effective immediately and shall be recorded as a Change Order.

24.7 Minor Changes. Architect will have authority to order minor changes in the Work not involving adjustment in the Allowable Cost, Expected Cost, the Target Cost, the EMP or the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written direction of Architect subject to, and agreement of, the Core Group and the CM/GC ("Architect's Supplemental Instruction" or "ASI") and, where possible should be issued with prior notice to Owner. The Core Group and the CM/GC shall promptly review ASIs and determine whether they will result in an increase in the Allowable Cost, Expected Cost, the Target Cost, the EMP or the Contract Time. If a member of the Core Group or the CM/GC contend that an ASI will result in an increase in the Allowable Cost, Expected Cost, the Target Cost, the EMP or the Contract Time, they shall proceed as specified for a Change Proposal Request.

24.8 Funding for Change Orders. Prior to finalizing a Change Order, the Owner shall provide the Architect and the CM/GC with reasonable evidence demonstrating the Owner's ability to pay for the Change Order.

24.9 Change Proposal Request.

A "Change Proposal Request" (or "CPR") is a document issued by Owner to the Architect or the CM/GC (the "CPR Recipient") that sets forth proposed changes in the Work or Services and requests the CPR Recipient's estimate of pricing and resulting schedule impact.

Promptly upon determining that a change in the Work or Services is being considered and prior to issuing a CPR, Owner shall discuss the proposed CPR with the Core Group in order to determine the potential impact on the current plan for execution of the Work and Services. After such conversation and provided Owner determines that issuance of the CPR is in the best interest of the Project, a CPR will be delivered to the Core Group and the CPR Recipient.

24.9.1 CPR Response. Upon receipt of a CPR, the Core Group and the CPR Recipient shall review and evaluate such CPR's scope and if any potential time, cost, constructability or similar impact on the Project is determined, shall notify Owner within seven (7) days of receipt of such CPR. Owner may direct the CPR Recipient to

stop Work or Services in the area affected by the CPR to minimize the cost impact or may direct the CPR Recipient to proceed with the change in the Work or Services. The CPR shall include a request that the CPR Recipient provide, within a reasonable time frame set forth in the CPR, a date by which they will be able to respond to the CPR, giving due consideration to the current Project plan and schedule. The CPR Recipient shall thereafter make a reliable commitment of a date by which the proposal will be submitted, which absent approval of the Core Group, shall be within twenty-one (21) days after receipt of a CPR. The CPR Recipient's proposal(s) shall substantiate requested adjustments in the Allowable Cost, Expected Cost, the Target Cost, the EMP and/or the Contract Time (including complete labour and material itemization). Methods used to determine adjustment shall be limited to those listed in this Article.

24.9.2 Architect or CM/GC initiated CPR. In the event either the Architect or the CM/GC becomes aware of a change in the Work or Services, a request or instruction by Owner or Architect, a change in applicable law, a force majeure event or any other matter or occurrence that will require an adjustment of the Allowable Cost, Expected Cost, the Target Cost, the EMP or the Contract Time for which a CPR has not been issued by Owner or Architect, the Architect or the CM/GC shall issue a combined CPR and CPR Response.Direction to Proceed. Owner shall have the discretionary right to require the Architect or the CM/GC to commence performance of changes in the Work or Services based on Change Proposal Requests prepared by Owner or Architect prior to the submission by the CPR Recipient to Owner of a cost proposal, or approval of the cost proposal by the Owner, Architect and CM/GC. In such case, the Architect or the CM/GC, as the case may be, shall proceed with the Work or Services so changed upon receipt of a Construction Change Directive from Owner as a Cost of the Work, and thereafter submit to Owner as requested any cost proposal required.Pricing of Changes. If a Construction Change Directive or Change Order provides for an adjustment to the Allowable Cost, Expected Cost, the Target Cost, and the EMP, the adjustment shall be based on the Cost of the Work to be determined in accordance with Exhibit 7 plus the applicable party's Fee thereon, unless the Parties have

24.10.1 mutually accepted a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation; or

24.10.2 mutually agreed upon unit prices stated in the Contract Documents.

24.11 Price Disagreement. Failure of the Parties to agree on an adjustment of the Allowable Cost, Expected Cost, the Target Cost, the EMP or the Contract Time shall not excuse the Architect or the CM/GC from proceeding with prosecution and performance of the Work and Services, including the Work and Services covered by the Construction Change Directive. The affected Party shall handle all disputes in a manner which will permit the Work and Services to proceed on schedule while the matter in dispute is being resolved.

Notwithstanding the foregoing provisions of this Section 24.11, neither the Architect nor the CM/GC shall have any obligation to proceed with any change in the Work or Services that, together with all prior changes in the Work and Services, would in the reasonable opinion of the Core Group cause the Actual Cost of unresolved changed work to exceed the Expected Cost by more than five percent (5%), unless and until the Owner, the Architect and the CM/GC have signed a Change Order with respect to such change in the Work and Services and Owner has provided evidence that it has the funds available to pay the additional costs.

24.12 Credit Changes. The credit to be allowed for a deletion or change in the Work or Services which results in a net decrease in the Allowable Cost, Expected Cost, the Target Cost, or the EMP shall be actual net decrease in the Cost of the Work calculated according to this Article. When both additions and credits covering related Work, Services or substitutions are involved in any change in the Work or Services, adjustment of the Allowable Cost, Expected Cost, the Target Cost, and the EMP shall be figured on the basis of net increase, if any, with respect to such change in the Work or Services.

24.13 Effect on Cost and Contract Time. If the Owner, the Architect and the CM/GC do not agree with the adjustment in the Allowable Cost, Expected Cost, the Target Cost, or the EMP or the Contract Time or the method for determining it, the adjustment or the method shall be resolved as a Claim.

24.14 Billings. Pending final determination of the total cost of a Construction Change Directive, amounts not in dispute for such changes in the Work or Services may be included in Payment Applications, as set forth in the Construction Change Directive.

24.15 Core Group Root-Cause Assessment. During the Design and Procurement Phase and the Construction Phase, the Core Group shall meet at least monthly to assign Change Orders to specific categories as defined and listed in **Exhibit 6**. Depending on the causes of a particular issue, there may be an apportionment between or among the multiple causes or categories specified in **Exhibit 6**.

25. PAYMENT

25.1 Application of *The Builders' Lien Act*. All payments made pursuant to this Section shall be subject to the holdback and other requirements of *The Builders' Lien Act* (Saskatchewan).

25.2 Architect's Compensation. For Architect's performance of Services in all Phases pursuant to this Agreement, Owner shall pay Architect a total amount consisting of Architect's Cost of the Work plus any amount payable to the Architect under the IPD Team Risk Pool Plan. The Architect's At-Risk Amount is _____ Dollars (\$_____). Once the Expected Cost has been approved, the Architect's Fees shall not be decreased as a result of any Change Order. Architect's Cost of the Work shall be determined in accordance with **Exhibit 7**. Architect shall be paid the sum of the hours expended by its personnel and by any of the Architect's Consultants' personnel, calculated in accordance with the direct and indirect labour costs plus costs reimbursable to Architect pursuant to **Exhibit 7**. Architect's Cost of Work shall be paid as set forth in Article 25 and the Payment Protocol. Charges for Architect's Consultants shall be included without additional mark-up by Architect.

25.3 Resource-Loaded Work Plan. Architect shall collaborate with other IPD Team Members in developing and provide to Owner, on a date established by the Core Group, a resource-loaded work plan ("**RLWP**") describing the work to be performed by Architect in each of the following:

Validation (Task I)	Implementation Documents (Task V)
Process Design (Task II)	Permitting/Pricing (Task VI)
Values Workshops and Preliminary Design (Task III)	Construction (Task VII)
Detailed Design (Task IV)	Commissioning and Project Close-Out (Task VIII)

Administration and coordination of Architect's Consultants and integration with all other IPD Team Members shall be reflected in the RLWP. At the direction of the Core Group, the required RLWP may be developed and approved in phases, depending on the needs of the Project.

25.4 CM/GC'S Compensation.

25.4.1 CM/GC's Compensation. For CM/GC's performance of the Work, the Owner shall pay CM/GC a total amount consisting of its Cost of the Work, as determined in accordance with **Exhibit 7**, plus CM/GC's Fee, which is comprised of the following:

(a) For Work performed during the Validation and Design and Procurement Phases, CM/GC will be not be paid a separate fee for its Work, but will be reimbursed for its Cost

of the Work, including the labour rates for its personnel as established and agreed upon by the initial Core Group.

(b) For Work performed during the Construction Phase, CM/GC will be paid a fee equal to ___ percent (___%) of the CM/GC's Cost of the Work, including Cost of the Work incurred during the Validation and Design and Procurement Phases ("**CM/GC's Fee**") plus any amount payable to the CM/GC under the IPD Team Risk Pool Plan. The portion of CM/GC's Fee that is the At-Risk Amount is _____ Dollars (\$_____). At the time Amendment No. 1 is executed, the CM/GC's Fee shall be calculated as a lump sum amount and shall not be decreased as a result of a Change Order.

(c) CM/GC's Cost of Work shall be paid as set forth in Article 25 and the Payment Protocol. CM/GC shall collaborate with other IPD Team Members in developing and shall provide to Owner, on a date established by the Core Group, a **RLWP** describing the Work to be performed by CM/GC, and the Subcontractors and Suppliers who will participate in the Design and Procurement Phase through completion of Task VI as identified in Section 25.3 and **Exhibit 3**.

25.5 Progress Payments.

- 25.5.1 Payments. The Party (either the Architect or the CM/GC) applying for payment (the "**Payment Applicant**") shall prepare **Payment Applications** in a format approved by the Core Group . During all Phases, the period covered by each Payment Application and the ending date of each payment period shall be established in the Payment Protocol adopted by the initial Core Group. The payment period shall be no less frequently than monthly and shall be established in order to maintain a cash neutral position for the Architect and the CM/GC and to maximize the benefit to Owner of making prompt payments for amounts incurred, without generating significant waste in the process. Provided a Payment Application is timely submitted, satisfies all requirements of the Contract Documents, and is approved by the initial Core Group, Owner shall make progress payments within ten (10) days of submission to the initial Core Group and otherwise in accordance with the Payment Protocol.
- 25.5.2 Schedule of Values. Before the first Payment Application for Work performed in the Construction Phase, CM/GC shall submit to the initial Core Group a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the initial Core Group may require. This schedule, approved by the initial Core Group, shall be used as a basis for reviewing CM/GC's Payment Applications. Each CM/GC Payment Application during the Construction Phase shall be based on the most recent schedule of values submitted in accordance with the Contract Documents. Payment Applications shall show the percentage of each portion of the applicable Work as of the end of the period covered by the Payment Application completed in accordance with the planning documents approved by the initial Core Group. At the discretion of the initial Core Group, payment applications for IPD Team Members working on a Cost-of-the-Work-plus-a-fee basis shall be based upon the Cost of the Work incurred during the payment period, together with the applicable Fee, rather than a schedule of values.
- 25.5.3 Materials & Equipment. Payment Applications for Work performed in the Construction Phase may include materials and equipment delivered and incorporated into the Work in accordance with the approved planning documents, or with the initial Core Group's prior approval delivered and suitably stored at the Site for subsequent incorporation into the Work or suitably stored off the Site at a location agreed upon in writing. Payment for materials and equipment stored on or off the Site shall be conditioned upon compliance by CM/GC with procedures satisfactory to Owner to establish Owner's title to such materials and equipment or otherwise protect Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the Site for such materials and equipment stored off the Site. Except with the initial Core Group's prior approval,

CM/GC shall not make advance payments to the Suppliers for materials or equipment which have not been delivered and incorporated into the Work.

- 25.5.4 Pencil Draw Procedure. Prior to submission of the formal Payment Application, the Payment Applicant shall schedule a meeting with the Core Group. The Payment Applicant shall prepare and prior to such meeting distribute a draft payment application that projects completion in accordance with the current planning documents through the end of the billing period ("**Pencil Draw**"). The initial Core Group shall review the drafts in an effort to avoid and attempt to resolve any disagreements concerning the formal Payment Applications and the percentages of completion the Payment Applicant intends to pursue for the month. Notwithstanding any position taken at that meeting, the Payment Applicant reserves all rights afforded by this Agreement in subsequently reviewing and processing the formal Payment Application.
- 25.5.5 Formal Application. Based upon the approved Pencil Draws, the Payment Applicant shall prepare its formal Payment Applications, which shall be supported by such data substantiating its right to payment as Owner may require, such as copies of requisitions from Subcontractors and Suppliers. Such applications may not include requests for payment of amounts the Payment Applicant does not intend to pay to its Subcontractors or Suppliers because of a dispute or other reason, unless the Payment Applicant has specifically notified Owner of an intended backcharge or dispute, and Owner has nonetheless approved the payment.
- 25.5.6 Supporting Documents. Each CM/GC's Payment Application shall be accompanied by the following, all in form and substance reasonably satisfactory to Owner, a duly executed and acknowledged sworn statement showing all Subcontractors and Suppliers with whom the CM/GC has entered into subcontracts, the amount of each such subcontract, the amount requested for any Subcontractor or Suppliers and the amount to be paid to the CM/GC from such progress payment, together with similar sworn statements from each Subcontractors or Suppliers identified by the initial Core Group.
- 25.5.7 Certification of Payment Applications. The CM/GC shall also certify that: (i) it has not received any written claims of builders liens as of the date of such Payment Application; (ii) it has no knowledge of any filed builders liens with respect to the applicable Work; (iii) all due and payable bills with respect to the applicable Work have been paid to date or shall be paid with the proceeds of such Payment Application; and (iv) the record drawings for the applicable Work as described in the Contract Documents are accurate and up-to-date. The CM/GC shall also certify the amounts previously received, the amounts previously paid to Subcontractors and Suppliers, and the amount currently due to the CM/GC, with the amounts, in each case, to be broken down by trades.
- 25.5.8 Review of Formal Application. The initial Core Group will promptly review the Payment Application to confirm compliance with the amounts approved in the Pencil Draw and the terms of the Contract Documents. They shall notify the Payment Applicant that the Payment Application has been approved or notify the Payment Applicant of any reason for disallowing payment, in whole or in part as provided below.
- 25.5.9 [Not Used]
- 25.5.10 No Right to Stop Work. Subject to Section 25.5.16 and Section 30.6.2 if the Payment Applicant disputes any determination with respect to any Payment Application, the Payment Applicant nevertheless shall expeditiously continue to prosecute the Work or Services, provided amounts not in dispute are timely paid.
- 25.5.11 Reliance. In taking action on Payment Applications, the initial Core Group shall be entitled to rely on the accuracy and completeness of the information furnished by the Payment Applicant and shall not be deemed to represent that they have made a detailed examination, audit or arithmetic verification of the documentation or supporting data; that they have made exhaustive or continuous on-Site inspections or that the initial Core Group has made examinations to ascertain how or for what purposes the Payment

Applicant has used amounts previously paid. Such examinations, audits and verifications, if required by Owner, will be performed by Owner's accountants acting in the sole interest of Owner and the cost of such examinations, audits and verifications shall be treated as Owner's Retained Costs. In the event the Owner's accountants discover an irregularity, the portion of the examination, audit or verification, as the case may be, associated with such irregularity shall be reimbursed to the Owner by the Party from whom the irregularity is generated.

25.5.12 Warranty of Title. The CM/GC shall assure that title to all work, materials and equipment covered by the Payment Application, whether incorporated in the Project or not, will pass to Owner at the time of payment by Owner, free and clear of all liens, claims, security interests or encumbrances in favour of the CM/GC or its Subcontractors, Suppliers, or other persons or entities entitled to make a claim by reason of having provided labour, materials or equipment relating to the applicable Work. The CM/GC shall defend, indemnify and hold Owner harmless from any and all liens, Claims, security interests or encumbrances filed by the CM/GC's Subcontractors, Suppliers, or other persons or entities entitled to make a claim by reason of having provided labour, materials or equipment relating to the applicable Work, provided that the CM/GC has received payment pursuant to this Agreement.

25.5.13 No Waiver. Payment by Owner shall not constitute approval or acceptance of any item of cost in the Payment Application. No partial payment shall be construed to be final acceptance or approval of that portion of the Work or Services to which such partial payment relates or relieve the Payment Applicant of its obligations with respect thereto.

25.5.14 [Not Used]

25.5.15 Payments to Architect's Consultants, the Subcontractors and the Suppliers. The Architect and the CM/GC shall pay each of its Architect's Consultants, Subcontractors and Suppliers within thirty (30) days of receipt of payment from Owner and otherwise in accordance with the Payment Protocol, the amount to which such Architect's Consultants, Subcontractors or Suppliers is entitled. The Architect and the CM/GC shall, by appropriate agreement with each Architect's Consultants, Subcontractors or Suppliers, require each to make payments to their respective subconsultants, subcontractors and suppliers in a similar manner. Neither Owner nor the Architect or the CM/GC shall have any obligation to pay nor to see to the payment of money to any lower tier subcontractors, suppliers or subconsultants, except as may otherwise be required by law.

25.5.16 Failure of Payment. If Owner does not make payment within twenty one (21) days after the date established in the Contract Documents of the amount approved for payment, then the Payment Applicant may, upon seven (7) additional days' written notice to the initial Core Group, stop the Work or Services until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Allowable Cost, Expected Cost, Target Cost and the EMP shall be increased by the amount of reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

25.6 Final Payment.

25.6.1 Payment. Subject to the requirements of The Builders' Lien Act (Saskatchewan), Final Payment shall be made by Owner to the Architect and the CM/GC in accordance with this Section within thirty (30) days after the Core Group's receipt of all close-out documentation and final certification of the Cost of the Work. Acceptance of Final Payment by a Risk Pool IPD Team Member shall constitute a waiver of all claims for payment by that payee against Owner or the Project, except those claims previously submitted in writing and identified in writing as unresolved at the time of Final Payment Application and those claims which arise after Final Payment.

- 25.6.2 Amount. The amount of the Final Payment to the Architect and the CM/GC shall be calculated as follows:
- (a) the Architect's and the CM/GC's total Cost of the Work
 - (b) [Not Used];
 - (c) subtract the aggregate of previous payments made by Owner.
- 25.6.3 Other Actions in Connection with Final Payment. In addition to Section 25.6.2, the Owner shall pay to each Risk Pool IPD Team Member: (i) its portion of the At-Risk Amount in accordance with the IPD Risk Pool Plan; and (ii) its share of the Incentive Compensation in accordance with the IPD Risk Pool Plan.
- 25.6.4 Final Accounting. Owner's accountants or other representatives will endeavour to review and report in writing on Architect's and CM/GC's final accounting within thirty (30) days after their delivery of the final accounting to the Core Group. Based upon such Cost of the Work as Owner's accountants report to be substantiated by the Architect's and CM/GC's final accounting, and provided the other conditions of this Article have been met, the Core Group will, within seven (7) days after receipt of the written report of Owner's accountants, either issue a Final Certificate for Payment or notify the Architect or the CM/GC, as may be the case, in writing of the reasons for withholding a certificate. If Owner's accountants report the Cost of the Work as substantiated by the Architect's or CM/GC's final accounting to be less than claimed by the Architect or CM/GC, as applicable, the Architect or the CM/GC, as may be the case, shall be entitled to proceed in accordance with the dispute resolution provisions. Pending a final resolution of the disputed amount, Owner shall pay the Architect and the CM/GC the amount certified as indicated in the Final Certificate for Payment.
- 25.6.5 Contest. If either the Architect or the CM/GC contests the amount certified for Final Payment, within fifteen (15) days following receipt of the Core Group's determination of the Final Payment amount, the Architect or the CM/GC, as may be the case, shall file its protest in writing with the Core Group.
- 25.6.6 Post-Completion Costs. If, subsequent to Final Payment and at Owner's request and with Core Group approval, the Architect or the CM/GC or both incurs an additional Cost of the Work, including amounts included in the Warranty Reserve, Owner shall reimburse such costs on the same basis as if such costs had been incurred prior to Final Payment.
- 25.6.7 Preconditions to Final Payment. Final Payment to a Party shall not become due until such Party submits to the Core Group
- (a) affidavits that payrolls, bills for materials and equipment, and other indebtedness connected with the applicable Work and Services, excepting only amounts to be paid out of Final Payment, for which Owner or Owner's property might be responsible or encumbered have been paid or otherwise satisfied in accordance with the terms of such agreements;
 - (b) certificates evidencing that insurance required by the Contract Documents to remain in force after Final Payment is currently in effect and will not be cancelled or allowed to expire until at least thirty (30) days' written notice has been given to Owner;
 - (c) written statements that such Party knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents; and
 - (d) where the party applying for Final Payment is the CM/GC, the following additional documents: (i) Conditional Waiver and Release Upon Final Payment Forms from CM/GC and its Subcontractors and Suppliers that have served or registered a Claim of Lien, to the extent, and in such form, as may be designated by Owner; (ii) Certificate of Completion certifying that the applicable Work has been

completed in accordance with the Contract Documents; (iii) the Record Drawings and Annotated Specifications required by the Contract Documents; (iv) the warranties, Submittals, and operations and maintenance data required by the Contract Documents; and (v) a Final Verified Cost Report, accompanied by an affidavit from officers of the CM/GC and any other company that has performed its work on a cost-plus-a-fee basis certifying the accuracy of the final Cost of the Work; (vi) Certificate of Compliance from the Saskatchewan's Worker's Compensation Board.

- 25.6.8 Missing Release. If a Subcontractor or Supplier refuses to furnish a release or waiver required by Owner, the CM/GC may furnish a bond or other security acceptable to Owner. The Core Group will determine the extent to which the costs, expenses, damages and liability incurred by the CM/GC in connection with the bond or other security are reimbursable as a Cost of the Work under **Exhibit 7**.
- 25.6.9 Delay to Final Completion. If, after Substantial Completion, Final Completion is materially delayed through no fault of the Architect or the CM/GC or by issuance of Change Orders, Owner shall, upon application by the Architect or the CM/GC and satisfaction of the requirements set forth in this Article, make payment of the balance due for that portion of the Work or Services fully completed and accepted. Such semi-Final Payment shall be made under terms and conditions governing Final Payment, except that it shall not constitute a waiver of Claims and the Architect and the CM/GC shall promptly proceed to complete all remaining Work or Services.

26. RIGHT TO AUDIT

26.1 Availability of Records. IPD Team Members' records, which shall include, but not be limited to, accounting records (hard copy, as well as computer readable data if it can be made available); written policies and procedures; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.); original estimates; estimating work sheets; correspondence; Change Order files (including documentation covering negotiated settlements); backcharge logs and supporting documentation; general ledger entries detailing cash and trade discounts earned; and any other supporting evidence deemed necessary by Owner to substantiate charges related to this Agreement (collectively, "**Records**") shall be open to inspection and subject to audit and/or reproduction by Owner's agent or its authorized representative upon Owner's reasonable request. Owner may also conduct verifications such as counting employees at the Site, verifying information and amounts through interviews and written confirmations with employees, subcontractors and subconsultants. Notwithstanding the right to audit, if Owner accepts a negotiated, pre-audited fixed rate for services, labour, or equipment, the negotiated rates will not be subject to audit after those rates have been agreed upon, but the number of hours billed and the classification of an employee within a rate class will be subject to audit and verification.

The Records shall also be open to inspection and subject to audit and/or reproduction by the Architect and the CM/GC or their respective agents and authorized representatives upon the Architect's or CM/GC's request, provided that any cost associated therewith shall be paid for by the Architect or the CM/GC, as the case may be.

26.2 Other Documents. Such audits may require inspection and copying from time to time and at reasonable times and places of information, materials and data of every kind and character, including without limitation, records, books, papers, documents, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and all other agreements, sources of information and matters necessary to evaluate and verify direct and indirect costs (including overhead allocations) as they apply to costs associated with this Agreement.

26.3 Flow Down. Each IPD Team Member shall require that all payees (including the Architect's Consultants, the Subcontractors and the Suppliers) comply with the provisions of this Article by incorporating these requirements in all written contracts. Such requirements to include flow-down, right-

to-audit provisions in contracts with payees shall also apply to such Architect's Consultants, Subcontractors and Suppliers. All IPD Team Members shall cooperate fully and will cause all payees to cooperate fully in furnishing or in making Records available to Owner.

27. INSURANCE, BONDING AND INDEMNITIES

27.1 Project Specific Insurance. The Core Group will investigate the feasibility of a Project specific insurance program for the Project and such program, if feasible, shall be incorporated into Exhibit 5 and the Allowable Cost, Expected Cost, Target Cost and EMP shall be adjusted by the costs to procure and maintain such program by Change Order to the extent the budget allocated for such program as determined under the Validation Study does not cover such costs. The costs to procure such program will be treated as a Cost of the Work. Payment of any deductible or self-insured retention amount in respect of the Project specific insurance program shall be treated as a Cost of the Work.

27.2 Non-Project Specific Insurance. Payment of any deductible or self-insured retention amount in respect of any insurance program that is not specific to the Project or other than the program described in Section 27.1 shall be the responsibility of the IPD Team Member required to maintain such policy of insurance.

27.3 Mutual Indemnity. To the fullest extent permitted by law, and without limiting indemnity provisions contained elsewhere in this Agreement, each Party (the "**Indemnifying Party**") shall indemnify and hold harmless each other Party, and each of their respective officers, directors, employees, agents and representatives (collectively, "**Indemnified Parties**") from and against Third Party Claims arising out of or resulting from performance of the Project in connection with this Agreement, but only to the extent that such Third Party Claim arises from or relates to bodily injury, sickness, disease or death, or injury to or destruction of tangible property (other than the Project itself), caused by or arising out of the Indemnifying Party's negligent acts or omissions, fault or misconduct, or the negligent acts or omissions, fault or misconduct of anyone directly or indirectly employed by the Indemnifying Party or anyone for whose acts the Indemnifying Party is legally responsible. The obligations of a Party pursuant to this Section 27.2 shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a person described in this Section. Nothing in this Section 27.2 shall be construed to provide indemnification to any Indemnified Party for claims, damages, losses or expenses to the extent caused by or arising out of the Indemnified Party's negligent acts or omissions, fault, misconduct or breach of this Agreement.

27.4 Indemnity Against Liens. Provided Owner is not in default of its payment obligations pursuant to this Agreement, the CM/GC and the Architect shall indemnify and protect Owner from and against all Liens in connection with the performance of the Work or Services by their respective Subcontractors, Suppliers Architect's Consultants, or other persons or entities entitled to make a claim by reason of having provided labour, materials or equipment relating to the applicable Work. For any such Lien, the CM/GC or the Architect, as applicable, shall, within ten (10) days after the date of receipt of written notice that the Lien has been registered against the premises: (i) pay or discharge any such Lien for or in respect of the applicable Work or Services; (ii) pay the appropriate amount into court in order to have the Lien vacated; or (iii) provide, in the CM/GC's or Architect's sole discretion, a bond or letter of credit from a surety or commercial bank in an amount and on terms and conditions reasonably acceptable to Owner to protect against such Lien. The Core Group will determine the extent to which the costs, expenses including attorney's and consultant's fees, damages and liability incurred by the CM/GC or the Architect in connection with such liens and actions are reimbursable as a Cost of the Work pursuant to **Exhibit 7**.

27.5 Limitation on Indemnity. The Architect's and CM/GC's indemnity obligations shall be limited in accordance with the limits of liability set forth in Article 28.

27.6 Relation of Insurance and Indemnity. The indemnity obligations specified in the Contract Documents shall not reduce or limit the insurance requirements specified in the Contract Documents, nor shall the insurance requirements limit the indemnity obligations.

27.7 Right to Demand Bonds. Before commencing the Construction Phase, CM/GC, at Owner's request, shall furnish Owner with bonds covering faithful performance of its obligations pursuant to this Agreement and payment of obligations arising thereunder in the full amount of the EMP. The forms of bonds and sufficiency of sureties shall be subject to Owner's approval. The Surety providing such bonds shall be licensed to do business in the province where the Project is located. The bonds shall provide that no change or alteration of the Contract Documents or any subcontract (including without limitation any change in the Contract Sum, Contract Time, Scope of Work, terms or conditions of payment of any subcontract) shall release any surety from its obligations to Owner under the bonds. The bonds shall have an effective date not later than the first day the Construction Phase Work is performed so that all Work performed under this Agreement shall be subject to the bonds. The cost of such bonds shall be paid by the Owner through a Change Order and the Allowable Cost, Expected Cost, Target Cost and EMP shall be adjusted accordingly.

27.8 Bonds for Subcontractors. The Owner and the Core Group collectively shall decide whether to require bonds or default insurance to cover all obligations of the Project. The costs associated with these decisions shall be handled as provided in the description of the Cost of the Work.

27.9 Execution. The Core Group shall require the attorney-in-fact who executes the required performance security documents on behalf of the provider to affix thereto a certified and current copy of the power of attorney.

27.10 Information to Surety. The Core Group shall keep providers informed of progress of Work and, where necessary, obtain consent to, or waiver of: (i) notice of changes in the Work; (ii) request for reduction or release of retention; (iii) request for Final Payment; and (iv) any other material changes required by the provider.

27.11 Copies of Bonds. Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under this Agreement, the Core Group shall promptly furnish a copy of the bonds or shall permit a copy to be made.

27.12 Pursuit of Insurance Claims. The Core Group shall evaluate any claims that may be covered by Project Specific Insurance Policy and/or other available insurance and shall decide whether or not it is in the best interests of the Project to pursue a recovery from such insurance, considering the amount of the claim, the deductibles under such coverage, the likelihood of success and any other relevant factors that may impact the recovery. Where the Core Group decides to pursue such recovery, the Core Group shall cooperate to bring the claim in the name of the proper party as required by such insurance. To the extent CM/GC, Architect or a Risk Pool Consultant incur costs as a result of any claim that may be covered by such insurance, those costs will be paid as a Cost of the Work pending recovery from such insurance. Any recovery from such insurance shall be added to the Allowable Cost, Expected Cost, Target Cost and EMP by Change Order. If and to the extent any deductibles on account of the Subcontractor Default Insurance policy (as described in Exhibit 5) are paid as a Cost of Work, such amount shall be added to the Allowable Cost, Expected Cost, Target Cost and EMP by way of Change Order.

If the recovery under such insurance occurs after Final Completion, upon receipt of the proceeds of the recovery, the distribution from the IPD Team Risk Pool Plan shall be recalculated as if the recovery had been made as of the date of Final Completion unless the Parties agree otherwise at the time of Final Completion.

28. LIMITS OF LIABILITY

28.1 General Limitation of Liability. Notwithstanding anything to the contrary that may be contained in this Agreement, in no event shall each of CM/GC, Architect or any Risk Pool Consultant be individually liable to Owner or any other entity affiliated with or related to Owner, for any damages, claims, demands, suits, causes of action, losses, costs, expenses and/or liabilities regardless of whether such liability arises out of breach of contract, guaranty or warranty, tort (including negligence), product liability, indemnity, contribution, strict liability or any other legal theory, in excess of such party's At-Risk Amount plus the amount of Incentive Compensation received by such party (the "Limit of Liability"), on the understanding that:

- (a) In the event the IPD Team Risk Pool is used to fund any Cost of Work or otherwise accessed under the terms of this Agreement or the IPD Team Risk Pool Plan (the aggregate sums that are so used or accessed herein referred to as the "Accessed Amount"), then the Limit of Liability of each of CM/GC, Architect and any Risk Pool Consultant shall be reduced by an amount equal to such party's contribution towards the Accessed Amount;
- (b) Subject to the Limit of Liability, each of CM/GC's, Architect's and any Risk Pool Consultant's total aggregate liability in comparison to the total aggregate liability of all of CM/GC, Architect and Risk Pool Consultants, shall be proportionate to such party's At-Risk Amount plus the Incentive Compensation received by such party in comparison to the total aggregate At-Risk Amounts plus the aggregate amounts of Incentive Compensation received by all of CM/GC, Architect and all Risk Pool Consultants;
- (c) If a claim is asserted against an IPD Team Member (other than CM/GC, Architect and any Risk Pool Consultant) or its insurer and that IPD Team Member or its insurer asserts a claim, cross-claim or third party claim alleging that the CM/GC, the Architect or any Risk Pool Consultant, caused or contributed to the amount claimed from such IPD Team Member, the Owner agrees that Owner will collect from such IPD Team Member only those amounts that are (a) attributed to the fault, breach, or liability of such IPD Team Member and (b) not recoverable (by contribution, indemnity or other theory) by such IPD Team Member from CM/GC, Architect or the Risk Pool Consultant and that any costs incurred by CM/GC, Architect or the Risk Pool Consultant as a result of any such claim, cross-claim or third party claim by such IPD Team Member shall be a Cost of the Work;
- (d) In the event CM/GC, Architect or any Risk Pool Consultant is terminated by Owner for convenience, such party's Limit of Liability shall be the amount of At-Risk Amount held by Owner for such party at the effective date of termination.

The preceding Limit of Liability shall not apply:

28.1.1 for the benefit or protection of any Subcontractor or Supplier including those Subcontractors and Suppliers who are Risk Pool IPD Team Members;

28.1.2 to liabilities to the extent satisfied directly or indirectly from project-specific insurance proceeds actually received by or for the benefit of the Owner from Project Specific Insurance Policy, on the understanding that if any amount of such liabilities was paid for as a Cost of the Work then such proceeds shall be added to the Expected Cost and the amount allocated to and distributions from the IPD Team Risk Pool shall be re-calculated, regardless of whether the party directly paid by the insurer on the claim was the party that originally sustained the covered loss;

28.1.3 to liabilities of a Risk Pool IPD Team Member to the extent arising from Fraud or Wilful Misconduct of that Risk Pool IPD Team Member (but not the Fraud or Wilful Misconduct of any other person or entity including other Risk Pool IPD Team Members, each Risk Pool IPD Team Member being liable solely for the Fraud or Wilful Misconduct of its own personnel); or

28.1.4 for the benefit or protection of any IPD Team Member other than CM/GC, Architect and the Risk Pool Consultants;

28.1.5 for fines or penalties assessed against any Risk Pool IPD Team Member by a governmental authority in connection with the Project, but only as it relates to such Risk Pool IPD Team Member and to the extent of such fines or

penalties and not any Cost of the Work related to or resulting from such fines or penalties;

28.1.6 for the benefit of a Risk Pool IPD Team Member who has abandoned the Project, prior to having completed its scope of Work or Services, but only to the extent of liabilities arising directly from its abandonment of the Project.

28.2 No Claims Against Employees. As the Owner's sole and exclusive remedy under this Agreement, any claim, demand or suit against the Architect, the CM/GC or any of the Risk Pool Consultants shall be directed and/or asserted against such party only and not against such party's employees, officers or directors .

28.3 Architect's Limitation of Liability Relative to Consultants. If Architect is required to over-stamp a Subcontractor's or Supplier's design-build or design-assist documents to meet the requirements of any governmental authority, Architect does not assume responsibility for authorship of those documents or responsibility for the professional or technical adequacy in connection therewith.

28.4 Mutual Waiver of Consequential Damages. Except to the extent recovered from any project-specific insurance procured by the IPD Team Members and except as it relates to the Risk Pool IPD Team Members' compensation, without limiting any recovery under the indemnification provisions in Article 27, Owner, CM/GC, Architect and the Risk Pool Consultants waive as between and among each other, any claim, loss, damages or liability for any consequential, punitive, exemplary, special, indirect, or incidental damages, which include, but are not limited to, loss of use, lost profits, increased financing costs, lost opportunities, lost bonding capacity, damage to reputation or business, loss of employee time or productivity or increased administrative costs (except where expressly allowed as a Cost of Work).

29. INTELLECTUAL PROPERTY RIGHTS

29.1 Proprietary Information.

29.1.1 Definition. For purposes of this Agreement, "**Proprietary Information**" shall be all information identified as such by the Disclosing Party to the other IPD Team Members in writing and shall include all information provided to any IPD Team Member in the course of providing Services or performing Work pursuant to this Agreement or otherwise in connection with the Project.

29.1.2 No Disclosure. Each IPD Team Member agrees that it will not disclose any of Proprietary Information to any third person and it will not use any Proprietary Information other than in connection with the Project, except as the Disclosing Party may otherwise authorize in writing. If disclosure to a third party is so authorized, the IPD Team Member shall, prior to disclosure, enter into a confidentiality agreement with such third party containing provisions at least as strict with respect to use and disclosure of such Proprietary Information as set forth in this Article.

29.1.3. Policy/Procedure. Each IPD Team Member represents that it has a policy and procedure designed to protect trade secret rights and to prevent unauthorized publication and disclosure of such information or agrees that it shall take necessary steps to prevent same. Each IPD Team Member agrees that any Proprietary Information shall be subject to that policy and procedure.

29.1.4 Documents. Each IPD Team Member shall take all reasonable precautions to safeguard any Proprietary Information. Each IPD Team Member may make copies of such information only to the extent necessary for performance of its obligations under this Agreement. Upon completion of the

Project, each IPD Team Member agrees to return to the Disclosing Party, or to destroy, all copies of the Disclosing Party's Proprietary Information that was furnished to such IPD Team Member; provided, however, that the foregoing shall not apply to any automatic electronic back-up of the Proprietary Information and that each IPD Team Member may retain one complete copy of the Proprietary Information for archival purposes or for use in any dispute that may arise in relation to this Agreement or the Project.

29.1.5 Public Relations. All public relations matters arising out of or in connection with the Project shall be the responsibility of and be handled by Owner. Each IPD Team Member shall obtain Owner's prior written approval, not to be unreasonably withheld or delayed, of the text of any announcement or publication to be made by or on behalf of any IPD Team Member in connection with the Project.

29.1.6 Exceptions to Restriction on Use and Disclosure. The restrictions on the use and disclosure of the Proprietary Information set forth in this Article 29 shall not apply to information that:

- (a) is or becomes publicly known through no wrongful act of the receiving party;
- (b) is, at the time of disclosure under this Agreement, already known to the receiving party without restriction on disclosure;
- (c) comes into the possession of the receiving party without violation of any contractual or legal obligation;
- (d) is independently developed by the receiving party without breach of this Agreement as evidenced by the receiving party's written records;
- (e) is explicitly approved for release by written authorization of an authorized representative of the Disclosing Party; or
- (f) is required to be disclosed pursuant to the requirements of a governmental authority or judicial order.

29.2 Ownership and Use of Documents.

29.2.1 Definition. Provided Owner is in compliance with all payment provisions under this Agreement, (except as may be subject to a good-faith dispute) all drawings, plans, specifications, calculations, notations, databases, physical or electronic models, BIM or other electronic data, and other documents prepared by Architect, CM/GC, or other IPD Team Members in connection with the Project (and any electronic media upon which they were prepared or stored) ("**Project Documents**"), including, without limitation, the Construction Documents, shall be vested in Owner and the Responsible Designer, subject only to the use provisions set forth below.

29.2.2 Copies of Documents. Unless otherwise provided in the Contract Documents, the Core Group shall establish the format and number of sets of Drawings and Specifications to be provided by Architect under its reimbursable budget to CM/GC and others throughout preconstruction including the permitted set of Drawings and Specifications. All other copies and all other drawings and documents required for the execution and completion of the Work shall be furnished by CM/GC and shall be included in its preconstruction budget, the Allowable Cost, Expected Cost, Target Cost and the EMP.

29.2.3 Possession. The originals of all Project Documents shall be held by IPD Team Members for the benefit of Owner. At Owner's request, copies of any or all Project Documents shall be immediately delivered to Owner in their original form, or in clear, reproducible form, regardless of whether this Agreement is completed, suspended or terminated.

- 29.2.4 Owner's Use. Owner shall have the right, regardless of whether this Agreement is completed, suspended or terminated, in whole or in part, to use and reuse the Project Documents for any purpose. In the event Owner uses or reuses the Project Documents to perform work or have work performed on its behalf for which the IPD Team Member who authored the documents is not retained, Owner shall indemnify, defend, protect and hold that IPD Team Member free and harmless from liability, if any, arising from the use of any Project Documents by Owner, including, without limitation, any liability to third parties for personal injury, death, or property damage.
- 29.2.5 Author's Use. The author of a Project Document may reuse plans, drawings, specifications and other data prepared pursuant to this Agreement in its practice and ordinary course of business. In the event any such IPD Team Member uses any of the plans, drawings, specifications and other data in its practice or its ordinary course of business, that IPD Team Member shall indemnify, defend, protect and hold Owner free and harmless from liability, if any, arising from the use of such plans, drawings, specifications and other data for purposes other than in connection with the Project, including, without limitation, any liability to third parties for personal injury, death, or property damage.
- 29.2.6 Limited Use. Subject to Sections 29.2.3 and 29.2.4, the Drawings, Specifications and other documents prepared by Architect, together with Submittals or other design documents prepared by CM/GC or any of its subcontractors or Suppliers specifically for this Project, and copies thereof furnished to CM/GC, are for use solely with respect to this Project. They are not to be used by CM/GC, or any Subcontractors or sub-subcontractor on other projects, or for additions to this Project outside the scope of the Work, without the specific written consent of Owner. CM/GC, its Subcontractors and Suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by Architect appropriate to and for use in the execution of the Work under the Contract Documents.

30. DEFAULT, SUSPENSION AND TERMINATION

30.1 Events of Default. The occurrence of any of the following events with respect to either CM/GC or Architect shall be an "**Event of Default**" with respect to such Party:

30.1.1 such Party institutes or consents to proceedings requesting relief or arrangement under the federal Bankruptcy Act or any similar or applicable federal or provincial law; or a petition under any federal or provincial bankruptcy or insolvency law is filed against such Party and such petition is not dismissed within sixty (60) days from the date of said filing; such Party admits in writing its inability to pay its debts generally as they become due; makes a general assignment for the benefit of its creditors; a receiver, liquidator, trustee or assignee is appointed on account of its bankruptcy or insolvency; or a receiver of all or any substantial portion of such Party's properties is appointed; such Party abandons the Work or Services, for which it is responsible, or persistently and without justification fails to: (i) prosecute promptly and diligently such Work or Services, excluding all cases for which extension of time is provided hereunder; or (ii) supply enough properly skilled workers or proper materials for such Work or Services; such Party submits a Payment Application, sworn statement, waiver of lien, affidavit or document of any nature whatsoever which is intentionally falsified; such Party persistently and without justification fails to make reasonably prompt payment when due, without just cause, to its Subcontractors, Suppliers or Architect's Consultants, for materials, labour or services provided that such payment has been received from the Owner; such Party fails without justification to cure a breach of Section 27.4 within thirty (30) days following receipt of notice from Owner of such breach; such Party in any material respect intentionally disregards laws, statutes, ordinances, rules, regulations or orders of any governmental body or public or quasi-public authority having jurisdiction over those activities for which such Party is

responsible under the Contract Documents or the Site of the Project; or such Party otherwise materially breaches this Agreement.

30.2 Notice of Default. Upon the occurrence of any Event of Default, Owner may provide written notice of such Event of Default to the defaulting Party, with copies to members of the Core Group. Owner shall promptly attempt to schedule a meeting of the Core Group, including each Party's Senior Management Representative, to be held within seven (7) days of the notice. Any such notice of an Event of Default shall describe the nature of the default and identify a period within which the defaulting Party shall cure the default, which period shall be at least seven (7) days after the applicable meeting of the Core Group and extended as reasonably necessary for the cure of the particular Event of Default, so long as the defaulting Party commences and pursues the cure with reasonable diligence during the identified time period.

30.3 Failure to Cure Default. If the defaulting Party fails to cure a default within the cure period established in the notice given pursuant to Section 30.2, as such period is extended pursuant to Section 30.2, with respect to the applicable Event of Default, Owner may terminate this Agreement with respect to such defaulting Party, without prejudice to any other right or remedy that may be available to it under this Agreement, at law or in equity. In addition, Owner may, without prejudice to any other available rights or remedies, as deemed appropriate in Owner's sole discretion:

30.3.1 take possession of the Site and all materials to be incorporated into the Work; accept assignment of CM/GC's or Architect's subcontracts; and finish the Work of CM/GC or the Services of Architect by whatever reasonable method Owner may deem expedient.

30.4 Payments Held. If Owner terminates this Agreement with respect to CM/GC or Architect for such Party's Event of Default, the terminated Party shall not be entitled to receive further payment until the Work or Services, as applicable, are completed. Upon completion of the Work or Services, as applicable, Owner shall, upon the request of the terminated Party, furnish an accounting of the relevant costs incurred by Owner in finishing the applicable Work or Services, including Owner's overhead and administrative expenses caused by the default. Upon completion of the applicable Work or Services, Owner shall pay to the terminated Party all amounts remaining due for performance by the terminated Party prior to termination (including, without limitation, unreimbursed Cost of the Work, and the Party's At-Risk Amount as determined by the IPD Team Risk Pool Plan).

30.5 Conversion of Improper Termination. If it is determined, by litigation, arbitration or otherwise, that a termination by Owner of a Party for default was unjustified hereunder and that Owner was in breach of this Agreement for so terminating such Party and was not the result of Fraud or Wilful Misconduct, the termination shall be deemed a Termination for Convenience and such Party's remedies shall be limited to those provided for a Termination for Convenience.

30.6 Suspension.

30.6.1 Owner may, without cause, order the IPD Team to suspend, delay or interrupt the Project, in whole or in part, for such period of time as Owner may determine. If Owner expressly provides notice of its intent to suspend the Project, CM/GC and Architect shall promptly provide Owner with an estimate of any impact on: (i) during the Construction Phase, the Allowable Cost, Expected Cost, Target Cost and the EMP; or (ii) during the Validation Phase or the Design and Procurement Phase, the Allowable Cost, Expected Cost and Target Cost that will result from the suspension. Based upon that response, if Owner elects to suspend the Project, the Allowable Cost, Expected Cost, Target Cost and the EMP shall be adjusted for increases in the cost of performance caused by suspension, delay or interruption, and the Contract Time shall be extended by the period of the suspension. No adjustment of the Allowable Cost, Expected Cost, Target Cost, the EMP or the Contract Time shall be made to the extent that performance is, was, or would have been so suspended, delayed or interrupted by another cause for which an IPD Team Member is responsible.

30.6.2 CM/GC and Architect may, in addition to any other rights afforded under this Agreement or at law, suspend performance of the Work and the Services if any of the following conditions occur: (a) during the Validation or Preconstruction Phases, more than sixty

(60) days elapse following the expiration of the most recently effective Work Authorization and prior to the execution of a new Work Authorization, (b) during the Construction Phase, Owner does not, upon receipt of written request from CM/GC or Architect, provide adequate assurance of funding for the unperformed and unpaid portion of the Work, or (c) failure of Owner to timely pay undisputed amounts due under any Payment Application. Should any of the events set forth in the immediately preceding sentence occur, CM/GC or Architect, as applicable, may provide written notice to Owner of the occurrence of an event entitling such Party to suspend performance unless such event is cured within seven (7) days following Owner's receipt of such notice. If Owner fails to cure such event within such seven (7) day period, CM/GC or Architect, as applicable, may suspend performance of the Work and the Services until the event is cured. In any such case, the Allowable Cost, Expected Cost, Target Cost, the EMP and the Contract Time shall be adjusted by appropriate Change Order.

30.7 Termination for Convenience. Owner may, at any time, terminate this Agreement, and the Work or Services hereunder, in whole or part, for Owner's convenience and without cause, upon written notice ("**Termination for Convenience**"). Such written notice shall state the extent and effective date of such termination, and on such effective date the IPD Team Members affected shall: (i) to the extent directed, stop work under this Agreement, place no further orders and enter into no further subcontracts for materials, labour, services or facilities; (ii) unless otherwise directed, terminate all subcontracts and orders; and (iii) take such other actions as may be necessary or requested by Owner to protect and preserve the terminated Work or Services and any other property in an IPD Team Member's possession in which Owner has or may acquire an interest.

30.8 Payment to CM/GC and Architect Following Termination for Convenience. In the event of Termination for Convenience, Owner shall pay to the Architect and the CM/GC, as the case may be, as the sole and exclusive remedy for Owner's Termination for Convenience: (i) that portion of the Cost of the Work allocable to the portion of the Project performed by the terminated Party prior to the effective date of termination; (ii) such other costs which the terminated Party may incur as a result of such termination, including all amounts payable to Subcontractors, Suppliers and Architect's Consultants; and (iii) the terminated Party's At-Risk Amount contributed through the date of termination, subject to any repayment obligation under Section 28).. Any payment under this Section shall be made only upon the expiration of the period within which liens may be recorded or served under *The Builders' Lien Act* (Saskatchewan), or Owner's receipt of all requested statutory lien waiver and release forms. Any dispute over the amount to be paid upon termination shall be resolved in accordance with the dispute resolution procedures set forth in Article 31.

30.9 Assignment. In the event of Termination for Convenience, the terminated Party shall, at Owner's request, assign to Owner their right, title and interest in and to all or some of the subcontracts or consulting agreements under this Agreement.

30.10 No Effect on Other Obligations. Termination of this Agreement, either for default or convenience, shall not constitute a release of continuing performance obligations that would otherwise survive completion of the Project, including, without limitation, claims for personal injury or property damage occurring prior to termination or to indemnity claims.

30.11 Termination by CM/GC or Architect. CM/GC or Architect may terminate this Agreement if the Project is suspended for a cumulative total of ninety (90) days within any twelve (12) month period through no act or fault of the Party seeking to terminate or such Party's Subcontractors, Suppliers or Architect's Consultants (as applicable), or any of their agents or employees, or any other person for whom such Party is responsible under the Contract Documents, for any of the following reasons:

30.11.1 issuance of an order of a court or other public authority having jurisdiction which requires the Project to be stopped; an act of government, such as a declaration of national emergency, which requires all Work or Services to be stopped; because Owner has not paid an amount due within the time stated in this Agreement; or because Owner has failed to fulfill Owner's obligations under the

Contract Documents with respect to matters important to the progress of the Work or the Services.

30.12 Payment to CM/GC and Architect Following Termination. In the event of a termination of this Agreement pursuant to Section 30.11, Owner shall pay to CM/GC and Architect, as the sole and exclusive remedy for such termination, the amounts that would be due to Architect and CM/GC pursuant to Section 30.8 upon a Termination for Convenience by Owner.

30.13 Certain Terminations of Either CM/GC or Architect. In the event of any termination of this Agreement with respect to either Architect or CM/GC ("**Terminated Party**") for any reason in any circumstance where the other one of such Parties ("**Non-Terminated Party**") is not at the same time terminated by Owner for an Event of Default, then: (i) Owner and the Non-Terminated Party shall negotiate in good faith over a replacement for the Terminated Party; and (ii) unless Owner and Non-Terminated Party agree to an appropriate replacement of Terminated Party and Change Orders and other changes to this Agreement as are mutually acceptable to Non-Terminated Party and Owner, Non-Terminated Party shall have the right to terminate this Agreement with respect to itself and such termination shall be treated as a Termination for Convenience by Owner.

31. DISPUTE RESOLUTION

31.1 Scope. All disputes arising out of or in connection with this Agreement or in respect of any defined legal relationship associated with, or derived from, this Agreement shall be resolved as provided in this Article.

31.2 Continued Performance. At all times during the pendency of a Claim or Dispute Resolution Proceeding, work shall continue unless otherwise directed by the Core Group. In the event of impasse at the Core Group, and provided Owner continues to comply with its obligations under this Agreement, the Parties to the Dispute Resolution Proceeding shall not suspend or disrupt performance of the Work due to any dispute on the Project without Owner's written permission.

31.3 Definitions. A "**Claim**" is a request, demand or assertion by one or more of the Parties seeking an adjustment or interpretation of the terms of this Agreement, payment of money, extension of time, or other relief with respect to its obligations under the Contract Documents. The term "**Claim**" also includes other disputes and matters in question among the Parties arising out of or relating to the Contract Documents. The responsibility to substantiate a Claim rests with the Party or Parties making the Claim.

31.4 Notice of Potential Claim. A **Notice of Potential Claim** shall be made to the Core Group at the earliest opportunity in an effort to afford maximum opportunity to avoid Project delay or cost impacts. Notice shall be provided if any Party believes additional cost is involved for reasons, including, but not limited to: (i) a written order for a minor change in the Work, (ii) an order by Owner to stop the Work where the claimant allegedly was not at fault, (iii) failure of payment by Owner, (iv) termination of this Agreement by Owner, or (v) Owner's suspension.

The Notice of Potential Claim must be made by written notice and shall contain the information listed below; provided that, if any of the required information is not available at the time the Notice of Potential Claim is submitted, claimant shall provide all information available and a statement indicating when the remaining information will be provided:

31.4.1 the date of the event giving rise to the Claim and, if applicable, the date when the event ceased; the nature of the occurrence or condition giving rise to the Claim; identification of the contractual provisions affected and an explanation of how the Claim relates to those provisions; an estimate of effect upon the Allowable Cost, Expected Cost, Target Cost or EMP, including an itemized breakdown of additional cost, if any; and an estimate of the effect, if any, upon the Construction Schedule and the Contract Time, including a comparison of the Construction Schedule and schedules prepared in connection with the Claim.

31.5 Time Limits on Claims. Subject to Section 33.1.2, Notice of Potential Claim by any Party must be initiated within fourteen (14) days after occurrence of the event giving rise to such Claim or within seven (7) days after the claimant first recognizes the condition giving rise to the Claim,

whichever is later. To the maximum extent possible, Notice of Potential Claim shall be provided before the additional work is performed or the additional cost is incurred, with a specific request that a response be provided by the date identified in order to avoid the harm contemplated by the Notice of Potential Claim.

31.6 Special Meeting. Owner, Architect and CM/GC shall attempt to resolve their disputes by reasonable business-like negotiations in accordance with the following procedures, and without resort to formal proceedings. Upon receipt of a Notice of Potential Claim, the affected Parties shall attempt to resolve it through direct negotiations at a special meeting ("**Special Meeting**") which is called solely for the resolution of disputes. The Special Meeting shall be held at the Site within a reasonable time not to exceed fourteen (14) days of a written request for the meeting, which request shall specify the nature of the dispute to be resolved. The Special Meeting shall be attended by non-attorney project representatives of the affected Parties, who shall attempt in good faith to resolve the dispute and have authority sufficient to do so.

31.7 Core Group Consideration. If the Parties are unable to resolve the Claim at the Special Meeting, then the Claim shall be submitted to the Core Group at its next meeting or at an Urgent Meeting requested by any Party. The Core Group will review Claims and take one or more of the following actions: (i) request additional supporting data from the claimant or a response with supporting data from another Party; (ii) request a technical analysis of the Claim from any IPD Team Member; or (iii) proceed in an effort to achieve a negotiated resolution of the Claim. The Core Group may, but shall not be obligated to, consult with or seek information from any Party or from persons with special knowledge or expertise who may assist the Core Group in issuing a technical interpretation or recommendation.

31.8 Senior Executive Meeting. If the Core Group is unable to resolve the Claim, any Party may request a meeting of the Senior Management Representatives with the Core Group. Upon such a request, a Senior Management Representative from each of CM/GC, Owner, and Architect shall review the claim in detail and then meet face-to-face to discuss and resolve the matter ("**Senior Executive Meeting**"). This Senior Executive Meeting shall occur no later than fourteen (14) days after the Core Group has declared an impasse in its efforts to resolve the dispute, unless the Parties agree upon a longer period of time. This meeting shall be for the express purposes of: (i) exchanging and reviewing all pertinent non-privileged documents and information relating to the matters and issues in dispute; (ii) freely and candidly discussing each Party's position; and (iii) reaching agreement upon a reasonable, compromise resolution of the Claim.

31.9 Independent Expert. If the Claim is not resolved within seven (7) days after the Senior Executive Meeting, then the Core Group may appoint one or more independent, third-party experts ("**Independent Expert**") to review the Claim. Once appointed, the Independent Expert shall review any technical analysis or recommendation, review material submitted by the parties and, as the Independent Expert deems appropriate, meet with the Parties and other persons having information relevant to the issues in dispute before rendering an opinion as to an appropriate resolution of the Claim, giving consideration to the factual and contractual issues involved. Within twenty-one (21) days after appointment by the Core Group, Independent Expert shall deliver a written recommendation to the Core Group and the other Parties to the Claim. The Core Group, and each of its members, may utilize Independent Expert's report as it deems appropriate in responding to claims or in assessing withholds or backcharges. The Independent Expert's fees shall be shared equally by each of the Core Group members and shall not be treated as a Cost of the Work. Independent Expert's opinion, conclusions and findings shall be admissible in any subsequent dispute resolution proceeding only to the extent agreed by all Parties and so ordered by a court of competent jurisdiction.

31.10 Non-Binding Mediation. If the dispute has not been resolved as provided above, any Party may, at its option, initiate mediation proceedings in which the remaining Parties shall participate. These proceedings shall be conducted by a third-party mediator who is acceptable to all Parties to the mediation and experienced in design and construction in the province where the Project is located, on projects of similar type and scope. The mediator shall be given written statement(s) of the Parties and may inspect the Site and documents. The mediator shall schedule a mediation session, to be attended by Owner, Architect and CM/GC, together with any other person who has an interest in the Claim, within a reasonable time of the mediator's selection. The mediation shall be attended by

representatives of Owner, CM/GC and Architect with authority sufficient to resolve the dispute. The cost of the mediation shall be borne equally by the parties to the dispute and shall not be treated as a Cost of the Work, i.e., if only Owner and CM/GC are involved in the dispute, then only the two of them shall share the cost at 50% each. No minutes shall be kept and the proceeding shall be confidential and not admissible except as provided below. The entire mediation process must be completed within thirty (30) days of the initiation of mediation proceedings, unless all parties involved in the dispute extend the mediation period.

31.11 Confidentiality. The mediation shall be treated as confidential and privileged, pursuant to applicable provincial law. If, as a result of the mediation, a negotiated settlement is reached, the Parties agree that such settlement shall be reduced to writing and that the Parties waive the protection of applicable provincial law to the extent necessary to enforce the mediated settlement.

31.12 Unresolved Impasse. If the dispute has not been resolved as a result of the foregoing procedure, the Parties each agree that all disputes arising out of or in connection with this Agreement or in respect of any defined legal relationship associated with it or derived from it, shall be referred to and finally decided by a single arbitrator out of the list of arbitrators agreed to or established by the Core Team, subject to the following terms and conditions:

31.12.1 any Party giving notice in writing to the other Parties to the dispute, not later than ten (10) working days after the date of termination of mediation pursuant to Section 31.10, to refer the dispute to be finally resolved by arbitration;[Not Used];the arbitration shall be conducted at the City of Moose Jaw in the Province of Saskatchewan;the provision of The Arbitration Act, 1992 ss. 1992 chapter A-24.1 shall govern the conduct of the arbitration; andthe cost of the arbitration shall be apportioned against the Parties thereto or against any one of them as the arbitrator may decidePrior to execution of Amendment No. 1, the Core Group shall agree upon a roster of at least three (3) individuals to act as an arbitrator under this Article.

31.13 Consolidation of Proceedings. The Parties acknowledge that a dispute under this Agreement may be based on facts or issues of law that also apply or relate to a dispute under a contract between Owner, Architect or CM/GC and another IPD Team Member and that in these circumstances it may be appropriate for the dispute proceedings that may have been initiated under two or more of these agreements to be consolidated into one proceeding.

31.13.1 DefinitionFor the purposes of this Section 31.13, "proceeding" means a Claim that has been referred to an Independent Expert in accordance with Section 31.9, mediation in accordance with Section 31.10 or arbitration in accordance with Section 31.12, between:

- (a) Owner and Architect under this Agreement;
- (b) Owner and CM/GC under this Agreement;
- (c) Architect and CM/GC under this Agreement;
- (d) Owner, Architect and CM/GC under this Agreement; or
- (e) any one or more of Owner, Architect and CM/GC and another other IPD Team Member.

31.13.2 Consolidation. Where:

- (a) a party in one proceeding is entitled to contribution or indemnity from a party in another proceeding in relation to any relief that is being sought against the party in the first proceeding;
- (b) a party in one proceeding is entitled to relief against a party in another proceeding and that relief relates to or is connected with the subject matter of the first proceeding; or
- (c) a question or issue;
 - (1) in one proceeding is substantially the same as a question or issue that relates to or is connected with: (A) the relief

claimed in another proceeding; or (B) the subject matter of another proceeding; and

(2) should properly be determined in a single proceeding,

a party to any of these proceedings may require the proceedings to be consolidated (such consolidated proceeding, the “**Consolidated Proceeding**”) by giving written notice to all parties to the proceedings proposed to be consolidated (the “**Consolidation Notice**”). The consolidation of two or more proceedings may occur by agreement of the affected parties or by the decision of the first appointed Independent Expert, mediator or arbitrator.

Notwithstanding the foregoing, a proceeding before an Independent Expert may not be consolidated with an arbitration proceeding, and vice versa.

31.13.3 Objection. Where any party to whom a Consolidation Notice was issued objects to the consolidation of the proceedings referred to in the Consolidation Notice, that party may within 5 business days of its receipt of the Consolidation Notice, refer its objection to the Saskatchewan Court of Queen’s Bench by giving written notice with reasons to all parties named in the Consolidation Notice. Where no objection is made within 5 business days of a party’s receipt of the Consolidation Notice, that party shall be deemed to have agreed to the consolidation of proceedings referred to in the Consolidation Notice and shall be bound by any award made by the Independent Expert or arbitrator, as applicable, in the Consolidated Proceeding.

31.14 Application of Procedures. CM/GC and Architect shall cause the provisions of this Article 31 to be incorporated in contracts with all subcontractors and subconsultants, so that all such parties shall also be bound to this dispute resolution procedure. This dispute resolution procedure shall not in any way affect any statutes of limitation relating to any Claim, dispute or other matter arising out of the Contract Documents.

32. REPRESENTATIONS AND WARRANTIES

32.1 Representations and Warranties of Owner. Owner represents and warrants to each Party that:

- 32.1.1 Owner is a business organization, validly existing and in good standing under the laws of the province where the Project is located;
- 32.1.2 Owner has the power under its organizational documents to execute and deliver this Agreement and to perform its obligations hereunder;
- 32.1.3 Owner has taken all actions necessary under its organizational documents to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;
- 32.1.4 neither the execution and delivery of this Agreement, nor the performance of, or compliance with, the terms and provisions hereof, will conflict with, result in the breach of, or require any consent under:
 - (a) to its knowledge, any provisions of applicable law; or
 - (b) the organizational documents of Owner, or any agreement, instrument, decree or judgment to which Owner is a party or by which Owner is bound, or constitute a default thereunder;
- 32.1.5 this Agreement constitutes a legal, valid and binding obligation of Owner enforceable against Owner in accordance with its terms, except as enforceability may be:

- (a) limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting the enforcement of creditors' rights generally, or
- (b) subject to the effect of general principles of equity.

32.2 Representations and Warranties of Architect. Architect represents and warrants to each of Owner and CM/GC that:

- 32.2.1 Architect is a business organization, validly existing and in good standing under the laws of the province where the Project is located;
- 32.2.2 Architect has the power under its organizational documents to execute and deliver this Agreement and to perform its obligations hereunder;
- 32.2.3 Architect has taken all actions necessary under its organizational documents to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;
- 32.2.4 neither the execution and delivery of this Agreement, nor the performance of, or compliance with, the terms and provisions hereof, will conflict with, result in the breach of, or require any consent under:
 - (a) to its knowledge, any provisions of applicable law; or
 - (b) the organizational documents of Architect, or any agreement, instrument, decree or judgment to which Architect is a party or by which Architect is bound, or constitute a default thereunder;
- 32.2.5 this Agreement constitutes a legal, valid and binding obligation of Architect enforceable against Architect in accordance with its terms, except as enforceability may be:
 - (a) limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting the enforcement of creditors' rights generally; or
 - (b) subject to the effect of general principles of equity.

32.3 Licensure and Qualifications of Architect. Architect represents that Architect and Principal are duly licensed to provide architectural design services in the province where the Project is located and that each Architect's Consultant will be duly licensed in the province where the Project is located, where such licensure is a statutory requirement, to provide the professional services being provided by such Architect's Consultant to the Project as of the date of such Architect's Consultant's agreement with Architect.

32.4 Representations and Warranties of CM/GC. CM/GC represents and warrants to each of Owner and Architect that:

- 32.4.1 CM/GC is a business organization duly registered under the laws of the province where the Project is located;
- 32.4.2 CM/GC has the power under its organizational documents to execute and deliver this Agreement and to perform its obligations hereunder;
- 32.4.3 CM/GC has taken all actions necessary under its organizational documents to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;
- 32.4.4 neither the execution and delivery of this Agreement, nor the performance of, or compliance with, the terms and provisions hereof, will conflict with, result in the breach of, or require any consent under:
 - (a) to its knowledge, any provisions of applicable Law; or
 - (b) the organizational documents of CM/GC, or any agreement, instrument, decree or judgment to which CM/GC is a party or by which CM/GC is bound, or constitute a default thereunder;

32.4.5 this Agreement constitutes a legal, valid and binding obligation of CM/GC enforceable against CM/GC in accordance with its terms, except as enforceability may be

- (a) limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting the enforcement of creditors' rights generally, or
- (b) subject to the effect of general principles of equity.

32.5 Qualifications of CM/GC. CM/GC's Project Manager and Project Superintendent shall possess a record of experience and performance on construction projects of comparable scope to the Project. CM/GC further represents that any Subcontractor or Supplier performing any Design-Build Work shall employ professionals duly licensed in the province where the Project is located to provide the professional services associated therewith.

33. MISCELLANEOUS PROVISIONS

33.1 Notices. All notices, requests, documents, approvals and other instruments made, given or delivered pursuant to and in connection with this Agreement shall be in writing (which shall include electronic transmission) to the addresses stated below, or to such other at any other address duly notified by the applicable Party to the other Parties at their respective addresses for service, and shall be deemed to have been duly given: (i) when delivered, if delivered in person or by reputable overnight courier, (ii) if transmitted before 5:00 p.m. Central Standard Time on a business day on the date transmitted by electronic mail or facsimile, in the case of facsimile, if, as evidenced by a facsimile confirmation, otherwise on the next business day; or (iii) three business days after deposit in the mail, registered or certified mail, return receipt requested, postage prepaid.

The Parties' addresses for notice and service are:	
Owner:	
Architect:	
CM/GC:	

33.2 Time Period for Notices.

The Parties agree that the failure to strictly comply with the time periods set out in this Agreement for notices shall not result in a loss of rights on the part of the Party failing to give notice within the required time period if:

- 33.2.1 the Party has given the notice in a reasonably prompt and timely manner in the circumstances; and
- 33.2.2 the failure to meet the notice period did not cause actual prejudice to the Party(s) to whom the notice is given if the other Party(s) did not suffer actual prejudice, including any additional costs, work or delay in relation to the Project. Where the failure to meet the notice period does cause actual prejudice to the Party(s) to whom the notice is given,

then the rights of the Party giving the notice shall only be curtailed to the extent of such actual prejudice provided Section 33.2.1 is satisfied.

33.3 Governing Law. This Agreement shall be governed by the laws of the Province of Saskatchewan, shall be interpreted and enforced in accordance with the laws of the Province of Saskatchewan, and is deemed entered into and executed in the City of Moose Jaw, where the Project is located. Any dispute arising out of or related to this Agreement or its breach, or the Project, and not otherwise subject to the provisions of Article 31 shall be commenced in a court of competent jurisdiction located in the City of Moose Jaw, in the Province of Saskatchewan.

33.4 Integrated Agreement; Modification. This Agreement represents the entire and integrated agreement between Owner and CM/GC, and Owner and Architect and supersedes all prior negotiations, representations or agreements, either written or oral. This Agreement may be amended or otherwise modified only by written instrument signed by each of the Parties or pursuant to the change procedures set forth in Article 24. If anything in any document incorporated into this Agreement is inconsistent with this Agreement, this Agreement shall govern. Nothing in this Section shall affect or negate the operation of the IPD Team Risk Pool Plan.

The Parties agree that any Exhibits that have not been completed at the time of execution of this Agreement will be included and incorporated as part of Amendment No. 1 if not sooner.

33.5 No Joint Venture. Each of the Parties is an independent contractor for all purposes, and nothing contained in this Agreement shall be construed to create an association, joint venture, trust or partnership, or impose a fiduciary duty, trust, or partnership obligation or liability on or with regard to any of the IPD Team Members. Each Party shall be individually responsible for its own covenants, obligations and liabilities under this Agreement. Except where otherwise expressly approved by another Party in writing, each Party shall act hereunder only on an individual basis and shall not be authorized to act as agent or representative of any other Party nor have the power or authority to bind any other Party for any purpose. No Party shall so bind any other Party, or represent to anyone that it has the authority to bind any other Party, or make any other representation about or on behalf of any other Party. Nothing in this section shall affect or negate the operation of the IPD Team Risk Pool.

33.6 Assignment. This Agreement shall enure to the benefit of and be binding upon the respective successors and permitted assigns of the Parties. Neither CM/GC nor Architect shall assign this Agreement, or rights hereunder, in whole or in part, without the Owner's prior written consent, except as provided below in this Section 33.6. Owner may, with advance written notice to CM/GC and Architect, assign this Agreement to wholly owned subsidiaries, parents, affiliates, merger partners of Owner, or others with whom Owner enters into a legal relationship before or after this Agreement is made, provided such assignee is reasonably acceptable to CM/GC and Architect following review of such proposed assignee, including without limitation its ability to perform the obligations of Owner under this Agreement, either alone or with guaranty of its performance by Owner.

33.7 Waiver. No action or failure to act by Owner, Architect or CM/GC shall constitute a waiver of a right or duty afforded them under this Agreement, nor shall such action or failure to act constitute approval of or acquiescence in a breach, except as may be specifically agreed in writing.

33.8 Interest. Payments due and unpaid under this Agreement shall bear interest from the date payment is due at prime (per Royal Bank of Canada) plus 2% per annum.

33.9 Attorneys' Fees. In the event any Party commences any action or proceeding against any other Party for any reason arising out of, in connection with, or related to this Agreement, the prevailing Party in such action or proceeding shall be entitled to recover such amount as the court or arbitrator may judge to be reasonable attorneys' fees, together with all costs, charges and expenses related to the suit, including all expert and consultant fees, provided that such Party is determined to have made a reasonable and good faith effort to fully comply with the Dispute Resolution Provisions of the Contract Documents.

33.10 Severability. The invalidity of any covenant, restriction, condition, limitation or any other part or provision of the Contract Documents shall not impair or affect in any manner the validity, enforceability or effect of the remainder of the Contract Documents, except when such invalidity would

constitute a material deviation from the general intent and purpose of the Parties as reflected in the Contract Documents.

33.11 Employment Laws. IPD Team Members shall maintain policies of employment that fully comply with all applicable legal requirements.

33.12 Royalties & Patents. Each IPD Team Member warrants to the others that no design, document, process, mean, or method that it prepares or proposes for and nothing else that it contributes to the Project shall infringe any Third Party patent, copyright, or other intellectual property right. Each such IPD Team Member shall defend suits or claims for infringement of Third Party copyrights, patent, or other intellectual property rights arising from the performance of that IPD Team Member's obligations hereunder and shall hold the other IPD Team Members harmless from loss on account thereof. However, if any IPD Team Member has reason to believe that the required design, process or product is an infringement of a Third Party copyright or patent, that IPD Team Member shall promptly notify the Core Group in writing. CM/GC shall include in the proposed EMP and pay all royalties and license fees associated with work described in the Contract Documents.

33.13 Conflict of Interest. Each IPD Team Member shall comply with the Conflict of Interest and Business Ethics requirements set forth in **Exhibit 8**.

[SIGNATURES ON FOLLOWING PAGE]

EXECUTION

By their signature below, each of the following individuals represent that they have authority to execute this Agreement and to bind the Party on whose behalf their execution is made.

OWNER

Per: _____
Print Name: _____
Title: _____

ARCHITECT

Per: _____
Print Name: _____
Title: _____

CM/GC

Per: _____
Print Name: _____
Title: _____

EXHIBIT 1

VALIDATION STUDY AND DELIVERABLES

Each of the items listed below shall be included in the Validation Study delivered to Owner pursuant to Section 9.3 of the Agreement.

1. **VALUE MODEL AND MODEL OF CARE**
2. **PROGRAM SUMMARY**
 - 2.1. Operational Assumptions
 - 2.2. Departmental Areas
 - 2.3. Operational Workshop Meeting Notes
3. **PLANNING SUMMARY**
 - 3.1. Space Program
 - 3.2. Stacking and Blocking Analysis
4. **DESIGN NARRATIVES AND SYSTEMS VALIDATION**
 - 4.1. Site Validation
 - 4.1.1. General Site Conditions and Constraints
 - 4.1.2. Vehicular Access and Parking
 - 4.1.3. Pedestrian Access and Accessibility
 - 4.1.4. Site Utilities
 - 4.2. Exterior Architecture
 - 4.2.1. Urban Design Approach
 - 4.2.2. Wall Systems Narratives
 - 4.2.3. Building Massing Studies
 - 4.3. Interior Architecture
 - 4.3.1. Finishes Matrix Validation
 - 4.3.2. Room Type Descriptors
 - 4.4. Structural Systems
 - 4.4.1. Structural Design Criteria Update
 - 4.4.2. Structural Approach Options (A3 summaries)
 - 4.5. Mechanical and Plumbing Systems
 - 4.5.1. Performance Design Criteria
 - 4.5.2. System Narratives
 - 4.5.3. Materials and Methods (includes specs and details)
 - 4.6. Electrical Systems
 - 4.6.1. Design Criteria
 - 4.6.2. Utility Services Summary

- 4.6.3. Normal and Critical Load Summary
- 4.6.4. Lighting
- 4.7. Technology Systems
- 4.8. Fire Alarm System
- 4.9. Acoustical Design
- 4.10. Food Service Analysis
- 4.11. Materials Handling and Management Analysis
 - 4.11.1. Materials Management
 - 4.11.2. Material Handling
 - 4.11.3. Sterile Processing
 - 4.11.4. Waste Management
 - 4.11.5. Pneumatic Tube
- 4.12. Security Systems
- 5. **UPDATE TO CODE SUMMARY AND FIRE PROTECTION REPORT**
- 6. **PROJECT SCHEDULES**
 - 6.1. Document and Submittal Strategies
 - 6.2. Proposed Design and Approval Schedule
- 7. **BUDGET AND COST ANALYSIS**
 - 7.1. Owner Budget Information
 - 7.2. Preliminary Cost Estimates
 - 7.3. Budget/Cost Analysis
- 8. **LEAN-ENABLED BIM WORKPLAN**
- 9. **COMMUNICATION PROTOCOL**

EXHIBIT 2

PROJECT BUSINESS CASE AND CONCEPTUAL PROJECT SCHEDULE

EXHIBIT 3
ARCHITECT'S SCOPE OF SERVICES

EXHIBIT 3A

**ARCHITECT'S AND ARCHITECT'S CONSULTANTS' BILLING RATES
(ALL PHASES)**

EXHIBIT 3B

**CM/GC'S AND SUBCONTRACTORS' BILLING RATES VALIDATION
PHASE AND DESIGN AND PROCUREMENT PHASE (PRIOR TO
ADOPTION OF IPD TEAM RISK POOL PLAN)**

EXHIBIT 4

APPLICABLE BUILDING CODES AND REGULATIONS

EXHIBIT 5 PROJECT SPECIFIC INSURANCE POLICY

EXHIBIT 5A

INSURANCE REQUIREMENTS FOR NON-RISK POOL IPD TEAM MEMBERS

EXHIBIT 6

CATEGORIES FOR CHANGE ORDERS

Owner, Architect, and CM/GC shall review Change Proposal Requests and Change Orders once per month at regularly scheduled construction meetings. This activity shall be an agenda item. Change Proposal Requests and Change Orders shall be assigned to one or more of the following categories:

1. **OWNER GENERATED–REQUESTED BY OWNER, OWNER'S CONTRACTORS OR CONSULTANTS.**
2. **UNKNOWN CONDITIONS–ITEMS WHICH WERE NOT ANTICIPATED DURING DESIGN OR WHICH CM/GC DID NOT ANTICIPATE DURING DESIGN OR BIDDING.**
3. **DESIGN REFINEMENT–ADDED VALUE OR BETTERMENT TO OWNER. OWNER WOULD HAVE PAID FOR WORK IF INCLUDED IN BID DOCUMENTS.**
4. **CONSTRUCTION REVISION–NO ADDED VALUE OR BETTERMENT TO OWNER. SOMETHING HAD TO BE ADDED, REMOVED OR REWORKED ONCE IT WAS INSTALLED, AND THE REVISION WAS NOT THE RESULT OF FRAUD OR WILFUL MISCONDUCT BY ARCHITECT OR CM/GC.**
5. **GOVERNING AGENCY GENERATED–THE RESULT OF AGENCY CODE INTERPRETATIONS, NEWLY ENACTED CODES OR POLICIES BEING ENFORCED WHICH WERE NOT ANTICIPATED DURING DESIGN OR BIDDING.**
6. **CM/GC GENERATED–THE RESULT OF CORRECTIVE WORK REQUIRING DOCUMENTATION TO RECORD THE CHANGE, OWNER ACCEPTED NON-CONFORMING WORK OR CM/GC-REQUESTED CHANGES.**
7. **ANY FORCE MAJEURE EVENT.**
8. **FAILURE OR DELAY OF OWNER TO PROVIDE OR CAUSE TO BE PROVIDED ANY INFORMATION OR OTHER ITEMS REQUIRED IN ACCORDANCE WITH THE AGREEMENT.**
9. **SUSPENSION OF THE WORK.**

EXHIBIT 7

COST OF THE WORK

1. COSTS TO BE REIMBURSED

1.1. The term "**Cost of the Work**" shall mean all costs and expenses actually incurred by Architect or CM/GC in the performance of the Project, excepting only those which are the result of Fraud or Wilful Misconduct. Costs shall be at rates not higher than the standard paid at the place of the Project except with prior consent of Owner. The Cost of the Work shall include only the items set forth in Section 1 of this Exhibit, and "Cost(s)" shall be defined as the actual expenses incurred or prices paid by Architect or CM/GC, but no more than customarily paid at the place where the Project is located. Cost of the Work also includes the CM/GC's Fee, excluding the At-Risk Amount of the CM/GC's Fee as set forth in Section 25.4. All of the following terms shall apply to each Risk Pool Subcontractor and each Risk Pool Consultant.

1.2. LABOUR COSTS.

- 1.2.1. Wages of workers directly employed by Architect or CM/GC to perform the Project. CM/GC shall obtain Owner's agreement for construction workers performing Work at off-site workshops.
- 1.2.2. Wages or salaries of Architect's supervisory and administrative personnel. Wages and salaries of CM/GC's supervisory and administrative personnel when stationed at the site in the home or branch office, or on the road when engaged in the administration of the project with Owner's prior written agreement. Rates and categories shall be as set forth in **Exhibit 3A** for Architect and **Exhibit 7A** for CM/GC.
- 1.2.3. Wages and salaries of CM/GC's supervisory or administrative personnel, whether stationed at the site, in the home or branch office, or on the road engaged in expediting the production or transportation of materials or equipment required for the Work, but only for that portion of their time required for the Work. This includes necessary shop drawing review, subcontract preparation, and scheduling performed at CM/GC's off-site offices, as approved by Owner. Rates and categories shall be as set forth in **Exhibit 7A**.
- 1.2.4. Costs paid or incurred by Architect or CM/GC for taxes, insurance, contributions, assessments and benefits required by law or collective bargaining agreements, and, for personnel not covered by such agreements, customary benefits such as sick leave, medical and health benefits, holidays and vacations, provided that such costs are based on wages and salaries included in the Cost of the Work under this Exhibit. For Architect's employees, these amounts shall be included in the rates set forth in **Exhibit 3A**. For CM/GC's employees, these amounts shall be included in the rates set forth in **Exhibit 7A**.
- 1.2.5. With Owner's approval, cost of annual cash bonuses actually paid to Architect's or CM/GC's salaried personnel assigned to the Project, in an amount not to exceed a percentage of each such person's annual base salary established by the Core Group, pro-rated according to the amount of time the employee worked on the Project during the preceding twelve months.
- 1.2.6. When pre-agreed rates do not exist, Architect and CM/GC shall compute actual costs for payroll taxes giving proper consideration to the annual limitations of wages that are subject to certain payroll taxes. Architect and CM/GC may accomplish this through the use of an accounting system which computes actual costs for payroll taxes when incurred up to the wage limit cut-off and allocates them to all jobs by individual based on the time worked on each job by the individual. Alternatively Architect and CM/GC may use an estimated net effective payroll tax percentage to allocate payroll tax costs during the year and make appropriate adjustments at the end of the year or at the end of the project

(whichever is more appropriate) to adjust the costs to actual net payroll tax cost. Using the latter approach, for example, if 50% of the wages paid to an employee during the year were chargeable to the Cost of the Work, then only 50% of the actual annual costs of payroll taxes would be allocable to the Cost of the Work.

- 1.2.7. Cost of the Work shall include the actual net cost to Architect or CM/GC for worker's compensation insurance attributable to the wages chargeable to the Cost of the Work per this Agreement.
- 1.2.8. Any payroll burden or related costs which are not required by law shall be subject to advance written approval by Owner to be considered reimbursable. Fringe benefit costs typically falling into this category include, but are not limited to, pension, employee stock option plans, bonuses, medical and dental benefits, and life and accident insurance. Architect and CM/GC shall submit detailed breakdowns of all such payroll burden costs along with a representation as to how the proposed actual billable cost will be computed. Such information must be reviewed and approved no later than execution of Amendment No. 1. Except for rates established in **Exhibits 3A** and **7A**, adjustments will be made to account for actual costs which may be less than the provisional maximum costs previously billed.

1.3. SUBCONSULTANT AND SUBCONTRACT COSTS.

- 1.3.1. Payments made by Architect to Architect's Consultants, and by CM/GC to Subcontractors, in accordance with the requirements of the subconsulting agreements or subcontracts. If CM/GC has proposed requiring payment and performance bonds from a Subcontractor and Owner refuses to permit CM/GC to include the bond premiums as a Cost of the Work, then in the event the Subcontractor defaults, the additional expenses paid to a replacement subcontractor, and all costs incurred by CM/GC, including attorney's and consultants' fees, and all liabilities to any person occasioned by such default, shall be considered a Cost of the Work and shall increase the EMP by a like amount.
- 1.3.2. The Core Group shall determine whether an Architect's Consultant or Subcontractor shall be compensated based upon a lump-sum or cost-plus, EMP or GMP basis. Architect's Consultant's and Subcontractors to be compensated on a cost-plus EMP or GMP basis shall have the Cost of their work calculated in accordance with these costs requirements, subject to specific variations that may be negotiated with the Architect's Consultant's or Subcontractor and approved by the Core Group.

1.4. COSTS OF MATERIALS AND EQUIPMENT INCORPORATED IN THE COMPLETED CONSTRUCTION.

- 1.4.1. Costs, including transportation, of materials and equipment incorporated or to be incorporated in the completed construction.
- 1.4.2. Costs of materials in excess of those actually installed but required to provide reasonable allowance for waste and for spoilage. Unused excess materials, tools, or equipment paid for by Owner, if any, shall be delivered to Owner at the completion of the Work or, at Owner's option, shall be sold by CM/GC; amounts realized, if any, from such sales shall be credited to Owner as a deduction from the Cost of the Work.

1.5. COSTS OF MATERIALS AND EQUIPMENT, FACILITIES AND OTHER ITEMS

- 1.5.1. Costs, including transportation, installation, maintenance, dismantling and removal of materials, supplies, temporary facilities, machinery, equipment, and hand tools not customarily owned by construction workers, that are provided by CM/GC at the site and fully consumed in the performance of the Work; and cost less salvage value of such items if not fully consumed, whether sold to others or retained by CM/GC. Cost for items previously used by CM/GC shall mean fair market value.

- 1.5.2. Rental charges for temporary facilities, machinery, equipment, and hand tools not customarily owned by construction workers, that are provided by CM/GC at the site, whether rented from CM/GC or others, and costs of transportation, installation, repairs and replacements, dismantling and removal thereof. Rental charges for all necessary temporary facilities, machinery, and equipment, exclusive of hand tools customarily owned by construction workers, which are provided by CM/GC at the site, including costs of transportation, installation, repairs and replacements, dismantling and removal thereof, whether rented from CM/GC or others, shall be consistent with those prevailing in the locality. Rates and quantities of equipment rented shall be subject to Owner's prior approval. Unless otherwise agreed by Owner and CM/GC, CM/GC shall provide at least two (2) bona fide price quotations from reputable equipment suppliers to validate the reasonableness of the rental rates charged or at the rates specified in **Exhibit 7B**, or rates to be agreed upon in Amendment No. 1.
- 1.5.3. Proposed rental rates and related fair market values for equipment owned by CM/GC or a Subcontractor (or any affiliate, subsidiary, or related party) shall be submitted to and approved by Owner prior to being used in connection with the Work. The projected usage for each piece of equipment proposed to be rented, and estimated total rentals shall be submitted for approval in advance in a form satisfactory to Owner so that an appropriate lease versus buy decision can be made.
- 1.5.4. Rental charges for bona-fide third-party equipment shall be considered reimbursable and will be reimbursed at actual costs, as long as rental rates are consistent with those prevailing in the locality. For any lease/purchase arrangement where any of the lease/purchase rental charges were charged to Owner as reimbursable job costs, appropriate credit adjustments to job cost will be made for an appropriate pro rata share of the fair market value of the equipment at the time it was last used on the job.
- 1.5.5. CM/GC shall be required to maintain a detailed equipment inventory of all job-owned equipment (either purchased and charged to job cost or job-owned through aggregate rentals) and such inventory shall be available to Owner each month.
- 1.5.6. All costs incurred for maintenance and repairs of equipment shall be reimbursed at actual cost. Repairs and/or replacement of a capital nature are considered to be covered by the rental rates. Major repairs and overhauls are not considered routine and ordinary; consequently, such costs are not reimbursable and are intended to be covered by the rental rates.
- 1.5.7. Costs of removal of debris from the site.
- 1.5.8. Reproduction costs, costs of telegrams, long-distance telephone calls, all other communication and technology expenses directly related to the Project, copying costs, postage and express delivery charges, telephone service at the site, radio/communications systems and equipment, and reasonable petty cash expenses.
- 1.5.9. That portion of the reasonable travel and subsistence expenses of Architect's or CM/GC's personnel incurred with Owner's prior written consent while traveling in discharge of duties connected with the Work.
- 1.6. MISCELLANEOUS COSTS.
 - 1.6.1. That portion directly attributable to this Agreement of premiums for insurance for Architect or CM/GC, together with other insurance-related expenses identified and approved in the EMP proposal. Charges for self-insurance will be considered as a reimbursable cost only if the arrangements for self-insurance are first disclosed in writing to Owner along with a proposed methodology for allocating a fair and equitable portion of the actual cost of the self-insurance out-of-pocket costs incurred to settle claims related to Work performed to this Project, and in no event in excess of the comparable cost of procuring conventional insurance.

- 1.6.2. Sales, use or similar taxes imposed by a governmental authority that are related to the Work and for which Architect or CM/GC is liable and that are not separately billed to and paid by Owner.
- 1.6.3. Fees and assessments for the building permit and for other permits, licenses and inspections for which Architect or CM/GC is required by the Contract Documents to pay, other than those permits for which Owner pays directly.
- 1.6.4. Fees of testing laboratories for tests required by the Contract Documents or necessarily incurred in the performance of the Work on the Project.
- 1.6.5. Royalties and license fees paid for the use of a particular design, process or product required by the Contract Documents, provided that Architect or CM/GC notified Owner, in writing, that a royalty payment would be necessary to use the design, process, or product specified in the Contract Documents; the cost of defending suits or claims for infringement of patent or other intellectual property rights arising from such requirement by the Contract Documents; payments made in accordance with legal judgments against Architect or CM/GC resulting from such suits or claims and payments of settlements made with Owner's consent.
- 1.6.6. Data processing costs directly attributable to Work on the Project. Data processing costs are limited to the cost of personal computer hardware and software used in the performance of and normal day-to-day administration, management and control of the Project, internet access, and labour costs directly supporting the information technology at the Project.
- 1.6.7. Lost deposits.
- 1.7. OTHER COSTS.
 - 1.7.1. Other costs incurred in the performance of the Project if and to the extent approved in advance in writing by Owner.
 - 1.7.2. In-house and outside legal and consultant costs reasonably resulting from performance of the Project, other than those arising from disputes between Owner and Architect or Owner and CM/GC, incurred with Owner's permission, which shall not be unreasonably withheld. All costs, expenses including attorney's and consultant's fees, damages and liability incurred in connection with Subcontractor or Supplier liens, bonds or other security, as provided in Articles 22 and 27 of this Agreement.
 - 1.7.3. Cost of CM/GC's Safety Program directly related to the Work.
 - 1.7.4. Cost of Architect's correcting or revising Plans and Specifications.
 - 1.7.5. Cost of corrective, remedial or warranty work actually incurred by CM/GC to the extent not compensated by insurance or by a Subcontractor or Supplier. The amount to be paid during the warranty period shall not exceed the Warranty Reserve established in ~~Amendment No. 4~~. No payments under this provision shall be made to Non-Risk Pool Subcontractors engaged on a lump sum basis.
 - 1.7.6. CM/GC agrees that CM/GC may, with Owner's written agreement which shall not be unreasonably withheld, self-perform certain items of work, including work which might otherwise be let to subcontractors. In the case of such self-performed work, CM/GC's total costs thereof, including but not limited to labour, materials, equipment, services and supervision, will be included in Cost of the Work.
- 1.8. EMERGENCIES AND REPAIRS TO DAMAGED OR NONCONFORMING WORK.

The Cost of the Work shall also include costs previously described that are incurred by CM/GC in taking action to prevent threatened damage, injury or loss in case of an emergency affecting the safety of persons and property, as provided in the Agreement.

2. COSTS NOT TO BE REIMBURSED

2.1. The Cost of the Work shall not include:

- 2.1.1. Except as otherwise provided in Section 1 of this Exhibit, salaries and other compensation of CM/GC's personnel stationed at CM/GC's principal office or offices other than the site office.
- 2.1.2. Except as otherwise provided in Section 1 of this Exhibit, expenses of Architects and CM/GC's principal offices, and offices other than the site office, including Architect's and CM/GC's home office computer systems and all hardware, software, maintenance, and similar expenses.
- 2.1.3. Overhead and general and administrative expenses, except as may be expressly included in Section 1 of this Exhibit.
- 2.1.4. Except as otherwise provided in Section 1 of this Exhibit, CM/GC's capital expenses, including interest on CM/GC's capital employed for the Work.
- 2.1.5. Any cost not included in Section 1 of this Exhibit.

3. DISCOUNTS, REBATES AND REFUNDS

3.1. CM/GC shall notify Owner of available discounts, rebates and refunds. Cash discounts obtained on payments made by CM/GC shall accrue to Owner if (1) before making the payment, CM/GC included them in a Payment Application and received payment therefor from Owner, or (2) Owner has deposited funds with CM/GC with which to make payments; otherwise, cash discounts shall accrue to CM/GC. Trade discounts, rebates, refunds and amounts received from sales of surplus materials and equipment shall accrue to Owner, and CM/GC shall make provisions so that they can be secured.

3.2. Amounts that accrue to Owner in accordance with Section 3.1 of this Exhibit shall be credited to Owner as a deduction from the Cost of the Work.

4. ACCOUNTING RECORDS

4.1. Architect and CM/GC shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management under this Agreement; the accounting and control systems shall be satisfactory to Owner. Owner and Owner's accountants or consultants shall be afforded prompt access to Architect's and CM/GC's records, books, correspondence, instructions, drawings, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to the Project and to Project record keeping and accounting personnel of Architect and CM/GC. Architect and CM/GC shall preserve these Project records for a period of three (3) years after final payment, or for such longer period as may be required by law.

4.2. Architect and CM/GC shall make available at any time during normal business hours, and upon reasonable advance notice to Owner access to their job cost accounting system. Owner shall accept the accounting systems journal cost report as satisfactory evidence of cost incurred for billing and payment purposes. Architect and CM/GC shall not have to submit paper backup for each journal entry as long as this information is maintained at its offices for audit by Owner.

EXHIBIT 7A

CM/GC LABOUR RATES

EXHIBIT 7B
EQUIPMENT RATES

EXHIBIT 8

CONFLICT OF INTEREST AND BUSINESS ETHICS POLICY

During the course of pursuing contracts with Owner and while performing contract work in accordance with this agreement, each IPD Team Member agrees to maintain business ethics standards aimed at avoiding any impropriety or conflict of interest which could be construed to have an adverse impact on the dealings with Owner.

IPD Team Members shall not have a business interest as a partner, joint venturer, officer, director, more than five percent (5%) shareholder, advisor, employee, or otherwise ("Business Interest") in or undertake a business opportunity or form a business venture with any employee, officer or director of Owner, without first disclosing such interest in writing to Owner and receiving its consent in writing.

IPD Team Members should not make or provide to be made any employment, gifts, extravagant entertainment, payments, loans, free work, substantially discounted work, or similar items of value to Owner's representatives, employees or their relatives. Similarly, IPD Team Members' employees, agents or subcontractors (or their relatives) should not receive any commissions, gifts, extravagant entertainment, payments, loans, free work, substantially discounted work or similar items of value from representatives of subcontractors, or material suppliers performing Work on this project.

IPD Team Members agree to notify an appropriate uninvolved representative of Owner as soon as possible after becoming aware of any instance where there has been a failure to comply with the provisions of this policy.

Upon Owner's request, an IPD Team Member agrees to provide a Management Representation Letter in a form agreeable to Owner stating that they understand Owner has a Business Ethics Policy which provides that no Owner employees nor members of their family shall accept anything of value from contractors, suppliers, vendors or others transacting or seeking to transact business with Owner and that they are not aware of any situations violating that policy which has not been previously reported to Owner as provided above.

CM/GC and Architect are expected to disclose in writing to Owner any business arrangements such as commission arrangements, referral fee arrangements, ownership interests, profit sharing arrangements, bonus arrangements, etc. that it's organization, any affiliated organization, or any representatives (or relatives of representatives) of their organization have with any other contractor, Owner's representative, or consultant involved in any way with Owner's project.

EXHIBIT 9

RESPONSIBILITY ALLOCATION MATRIX

EXHIBIT 10

PRINCIPLES FOR RISK POOL STRUCTURE AND PROCEDURES

1. **CREATION AND GENERAL ADMINISTRATION OF THE IPD TEAM RISK POOL**
2. **CALCULATION OF "INCENTIVE COMPENSATION "**
 - 2.1. CM/GC
 - 2.2. Architect
 - 2.3. Other Risk Pool IPD Team Members
3. **RELEASES OF FUNDS FROM ACCOUNT**
4. **UPON FINAL COMPLETION**
 - 4.1. Cost Overrun Sharing Over-Expected Cost
 - 4.2. Other Details
5. **PRIOR TO FINAL COMPLETION**
 - 5.1. Normal Course
 - 5.2. Upon Default
 - 5.3. Other Early Termination
6. **CM/GC AND ARCHITECT AS "AGENT" FOR OTHER RISK POOL IPD TEAM MEMBERS**
7. **APPLICABLE PAYMENT DETAILS AND PROTOCOLS**
8. **DISPUTES**
9. **OTHER NECESSARY OR APPROPRIATE DETAILS IDENTIFIED BY THE PARTIES**

EXHIBIT 11

INITIAL PROJECT ROSTER

EXHIBIT 12

PROJECT SITE LEGAL DESCRIPTION

EXHIBIT 13

GENERAL CONSTRUCTION PHASE REQUIREMENTS

1. "5S" PLAN

CM/GC and Subcontractors shall develop and implement a "5S" plan for the Project. The plan shall address the following elements:

Sort:	Removing clutter and all unnecessary items from the work environment; items are brought or stored only when they are needed and are removed from the site when no longer required. Applies to paper, drawings, and other office items, as well as materials and equipment.
Set in Order:	Identifying the location where items will be used and placing those items close at hand; creates a place for everything, and requires that everything be put in its place. Items and storage vessels are clearly labelled or marked.
Shine/Sweep:	Creating an orderly and clean workspace with continuous clean-up; visual and physical protocol for continuous disposal of refuse; schedule for regular clean-up; visual displays to support.
Standardize:	Publishing "standard practices" for implementing the 5S program, but constantly looking to improve.
Sustain/Self-Discipline:	Creating the expectation that satisfying the plan covering the first four elements is the minimum, and that performers are expected to continually evolve and improve the systems.

The 5S Plan shall be submitted to the Core Group for review and approval.

2. CLEAN-UP. "5S" PLAN

CM/GC and Subcontractors shall keep the Site free from accumulation of waste materials or rubbish caused by performance of their Work. At completion of the Work, CM/GC and Subcontractors shall remove from and about the Site, waste materials, rubbish, tools, construction equipment, machinery and surplus materials.

3. OWNER'S RIGHTS

If CM/GC fails to clean up as provided in the 5S plan and the Contract Documents, after reasonable notice from the Core Group of such failure, Owner may do so and the cost thereof shall be charged as a Cost of the Work.

4. GLASS

CM/GC shall be responsible for glass broken or damaged prior to Substantial Completion as a result of performance of the Work, and at Substantial Completion of the Work, shall replace such damaged or broken glass as a Cost of the Work. After broken or damaged glass has been replaced, CM/GC shall remove all labels, and wash both sides of all glass.

5. USE OF SITE

CM/GC shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. To the maximum extent feasible, CM/GC shall use just-in-time deliveries of materials and equipment.

6. **CUTTING AND PATCHING**

CM/GC shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

7. **PROTECTION OF OTHER'S WORK**

CM/GC shall not damage or endanger a portion of the Work, or fully or partially completed construction of Owner or separate contractors, by cutting, patching or otherwise altering such construction, or by excavation. CM/GC shall not cut or otherwise alter such construction by Owner or a separate contractor except with written consent of Owner, not to be unreasonably withheld or delayed.. CM/GC shall not unreasonably withhold from Owner CM/GC's consent to cutting or otherwise altering the Work. Owner shall ensure that Owner's Consultants, Owner's separate contractors perform their construction works in accordance with the agreed Project schedule.

8. **FIELD MEASUREMENTS**

To allow Architect to make corrections, CM/GC and Subcontractors shall, sufficiently in advance of undertaking Work, take field measurements and verify field conditions and compare such field measurements and conditions and other information known to CM/GC or Subcontractors with the Contract Documents. Errors, inconsistencies or omissions discovered shall be reported immediately to Architect and Owner in writing. CM/GC and Subcontractors shall not perform any construction activity that involves an error, inconsistency or omission in Contract Documents of which CM/GC or the applicable Subcontractor had actual knowledge, without such notice to and approval of each of Architect and Owner.

9. **SUPERVISION AND OVERSIGHT**

CM/GC shall supervise and direct the Work in accordance with the requirements of this Agreement. CM/GC shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures, including safety procedures, and for coordinating all portions of the Work, unless the Contract Documents give other specific instructions. Subject to the limitations of liability set forth in Article 28 of this Agreement and the allocation of responsibility for correction of Nonconforming Work set for in Article of this Agreement, CM/GC shall be responsible to Owner for acts and omissions of CM/GC's employees, Subcontractors, Suppliers, and any of their agents and employees, and other persons or entities performing portions of the Work for or on behalf of CM/GC or any of its Subcontractors or Suppliers.

10. **COORDINATING INSPECTIONS**

If any of the Work is required to be inspected or approved by any public authority, CM/GC shall cause such inspection to be performed or approval to be obtained, except to the extent any such inspection or approval concerns Owner-supplied material or identified as Owner's responsibility pursuant to **Exhibit 9**.. No inspection performed or failed to be performed by Owner shall be a waiver of any of CM/GC's obligations or be construed as an approval or acceptance, in whole or in part, of the Work.

11. **COMPLIANCE WITH LAW**

CM/GC shall conduct its operations to comply with all applicable federal, provincial and local laws, codes, rules, regulations, and orders (as well as any judgments and decrees of which Owner has made CM/GC aware) which are in effect at any time prior to or during the performance of Work. All changes to the Drawings and Specifications are subject to the approval of the applicable authorities having jurisdiction. Should any laws or ordinances that affect CM/GC's operations, costs or expenses be enacted after acceptance of the Expected Cost which causes CM/GC to bear additional costs, a appropriate Change Order shall be issued to adjust the Allowable Cost, Expected Cost, Target Cost, andand the EMP and the Contract Time, and Owner shall reimburse CM/GC for all such additional costs as a Cost of the Work.

12. **CONSTRUCTION STAKING**

CM/GC shall employ a Licensed Surveyor to locate and provide construction staking for the Work and establish necessary reference and bench marks. CM/GC, working from established bench marks and reference points, shall lay out and correctly establish all lines, levels, grades and locations of all parts of the Work and be responsible for the accuracy and proper correlation with the Work and established data.

13. **LABOUR AND MATERIALS**

Unless otherwise provided in the Contract Documents, CM/GC shall provide and pay for labour, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work, and all such costs shall be reimbursed to CM/GC as a Cost of the Work in accordance with **Exhibit 7**. CM/GC shall order the material and equipment in accordance with an agreed-upon material logistics plan and the current Look Ahead Plan in an effort to promote just-in-time deliveries to the site and minimize handling costs and provide the least obstruction of the premises and any adjoining property. CM/GC may make substitutions only with the consent of the Core Group, not to be unreasonably withheld or delayed.. Acceptance of materials by or on behalf of Owner does not bar future rejection if subsequently found to be Nonconforming Work.

14. **PERSONNEL**

CM/GC shall enforce strict discipline and good order among CM/GC's employees and other persons carrying out the Work. CM/GC shall utilize reasonable commercial efforts to prevent employment of unfit persons or persons not skilled in tasks assigned to them and shall replace individuals upon reasonable request of the Core Group. CM/GC shall utilize reasonable commercial efforts to provide and maintain at all times a sufficient number of properly trained, skilled and qualified personnel to complete the Work within the Contract Time, as it may be adjusted in accordance with this Agreement.. CM/GC and Subcontractors shall comply with Owner's reasonable requirements for employee background checks.

15. **RESPONSIBILITY**

CM/GC shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with performance of the Work. Without limiting the generality of the foregoing, the CM/GC shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

- 15.1. Employees on the Work and other persons who may be affected by the Work;
- 15.2. The Work and materials and equipment to be incorporated, whether in storage on or off the site, under care, custody or control of CM/GC,Subcontractors or SuppliersSuppliers;
- 15.3. Other property at or adjacent to the site, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
- 15.4. Plant life and soils, without limitation, due to solvents, oils and any other substance which may be harmful.

16. **FINES & PENALTIES**

CM/GC shall be responsible for the payment of all fines levied against Owner arising from or related to wrongful or improper performance of the WorkWork.

17. **[NOT USED]**

18. **BARRIERS & WARNINGS**

CM/GC shall erect and maintain, as required by applicable lawlaw and the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

19. **[NOT USED]**

20. **SAFETY REPRESENTATIVE**

CM/GC shall designate the Project Superintendent, or such other qualified member of CM/GC's organization at the site as may be approved by Core Group acting reasonably, to be primarily responsible for safety.

21. **PROJECT LOADING**

CM/GC shall not load or permit any part of the Work, existing property or structures, or the site to be loaded so as to endanger the safety of persons or property.

22. **WEATHER RISKS**

CM/GC shall maintain work, materials and apparatus free from injury or damage from rain, wind, storms, frost or heat. If adverse weather makes it impossible to continue performance of the Work safely in spite of weather precautions, CM/GC shall cease work and notify Owner and Architect of such cessation and the provisions of Section of the Agreement shall apply

23. **SITE DAMAGE**

In addition to its other obligations pursuant to this Exhibit, CM/GC shall promptly repair any damage or disturbance to walls, utilities, sidewalks, curbs and property of third parties (including municipalities) resulting from performance of the Work, whether by it or by its Subcontractors.

24. **STREETS**

CM/GC shall maintain streets in good repair and traversable condition. CM/GC shall return all improvements on or about the site and adjacent property which are not shown to be altered, removed or otherwise changed, to conditions which existed previous to starting performance under the Contract.

25. **WATER PRECAUTIONS**

CM/GC shall keep all parts of site, including excavations, free from any accumulation of water, no matter what the source or cause. CM/GC shall dispose of water in such manner as will not endanger public health or cause damage to property or expense to any adjacent property owner. CM/GC shall comply with requirements of any public agencies having jurisdiction. If sewers and streets are allowed to be used for drainage or disposal of water during construction, CM/GC shall maintain and leave these satisfactorily clean upon completion of the Work.

26. **ACCIDENTS**

CM/GC shall promptly report in writing to Owner and Architect all accidents arising out of or in connection with the Work which result in death, personal injury or property damage.. In addition, if death, serious personal injuries or serious property damages are caused, the accident shall be reported immediately by telephone or messenger to Owner and Architect.

EXHIBIT 14

IPD TEAM RISK POOL PLAN

EXHIBIT 15
BIM PROTOCOL
